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This article is the text of an address given at the conference on "The University and Its World Responsibilities" during the Princeton University Bicentennial celebration. Mr. Northrop, who is Professor of Philosophy at Yale University, is the author of the highly commended book, "The Meeting of East and West."

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BELL TELEPHONE SYSTEM

The Journal of Higher Education APRIL, 1947

Education for Intercultural Understanding

By F. S. C. NORTHROP

Ability To Think Deductively Essential to the Sympathetic Understanding of Another Race's Fundamental Beliefs

EDUCATION must fit men to understand and solve the inescapable problems of our time. Any consideration of the character of education, therefore, must begin with an analysis of these problems.

Even at the cost of becoming repetitious, it must none the less be reiterated that the most pressing problem of our time centers in the atomic bomb. The presence of this bomb in our midst raises the question whether we will have any time to face the other pressing problems of our world. The next war will truly be a war to end all future wars, since it will be a war which ends all possible warriors.

Nevertheless, the atomic bomb itself is not the real danger. For the atomic bomb will not hurt civilization unless men direct it to such ends. This means that the problem centers not in scientific technology but in moral philosophy and the social sciences. It is the latter subjects which create social conceptions—economic, political, religious, and philosophical—necessary to generate the social controls requisite for directing the use of scientific technology to constructive ends.

To note this, however, is to become aware that the problem confronting our world is even more serious than the presence of the atomic bomb might indicate. For when we turn to the economic, political, and religious doctrines defining the type of social organization which the different nations, peoples, and cultures in the world deem good, we find not agreement but deep-rooted conflict. The Latin-American conception of the good society differs from the Anglo-American one; the American conception of appropriate economic and

political organization differs from that of the Labor Government in Great Britain. The ideology of the democracies west of the Rhine differs from the communist ideal of economic democracy of Soviet Russia, and the traditional culture of the West has been at loggerheads with the traditional culture of the East. Everywhere in the realm of ideals to which we must turn if we are to control the atomic bomb, we find basic disagreement and conflict rather than agreement and mutual trust.

Furthermore, these differences in the social ideals to be used in setting up the social controls necessary to direct atomic energy to constructive ends are Oriental as well as Occidental in their character and focus. It is no longer the case that war is likely to break out in a serious form only in Europe. The ideologies of the nationalistic nations of the West have now spread to Asia. Thus nationalistic wars of the Western type are as likely to start in Korea or Java or Northwest China or India as in the Balkans or in the Rhineland. Conversely, Oriental peoples and values are pressing upon the West for recognition in their own right. The Japanese, Chinese, Indians, and Javanese are insistent upon bringing their political, economic, and traditional cultural weight to bear upon the West as well as to receive values from the West. This means that as time goes by, traditional Oriental ideological issues are more and more going to become Western issues also.

FROM these considerations certain conclusions follow immediately. An education which would fit men to meet the problems of the contemporary world must acquaint men not merely with Western civilization but with all the major civilizations of our world. Even within its treatment of Western civilization, it must do more than convey the economic, political, and religious doctrines of our particular culture and period in the Western world. This means, to be more specific, that a department of economics in any university cannot restrict itself to the economic science of Jevons and the Austrian School, rooted in pre-Kantian British empirical philosophy. It must also convey the theory of economics of Historismus, rooted in the historical philosophy of Hegel, and the labor theory of the economic science of Marx, rooted in Marxian dialectical materialism. Similarly, a department of religion must do more than merely convey one conception of religion, the theistic Western one, and within theism merely one type of theistic religion, namely Christianity, and within Christianity merely one form of that, namely, modern Protestantism or medieval Roman Catholicism.

What must be said with all the emphasis at one's disposal is that our very existence as human beings during the next ten or fifteen years depends upon whether we can learn to understand each other and resolve the ideological conflicts which divide us internationally. For this undertaking we must first thoroughly understand the differing cultures and their respective differing and often conflicting economic, political, and religious normative ideological theories. It is these theories which define what a specific culture regards as good and which prescribe the type of

social organization to which it will agree in a conference of the United Nations. Consequently, if these conferences are ever to succeed, men in different parts of the world must receive an education which enables one to understand the other person's culture and ideology as well as his own, an education which gives a clear conception of the basic problem to which these conflicting ideologies are differing answers. Only if these basic problems, as thus clearly defined, are faced and then resolved, can a really constructive program for peace, grounded in understanding and knowledge rather than bickering and threats and verbal futile compromises, be achieved.

If this be accepted, a second question arises immediately. What character must the curriculum in our educational institutions take on? Obviously, everything which the sciences of anthropology and sociology tell us concerning the world's different cultures must be taught. This is obvious and axiomatic. Something more, however, is required. A culture is not merely the facts which an anthropologist observes by a careful use of the objective methods of science. It is also the concepts and theories by which these facts are understood by the people indigenous to this culture.

IT IS with respect to the concepts and theories in terms of which the people of a given culture themselves understand their own empirically present cultural practices and institutions that contemporary anthropology and sociology are weak. This, moreover, is a serious weakness so far as the present situation in our world is concerned. For the failure of peoples from different nations and cultures to agree on social controls to avoid the present dangers, centers not in the fact that their empirical practices and institutions are different, but centers instead, in considerable part, in a difference in the normative theories from the standpoint of which they judge their own and all other empirical social institutions. Thus the normative theories indigenous to the respective cultures are at the heart of the difficulty, and an anthropological and sociological science which neglects these normative theories misses the fundamental problem of the contemporary world.

This fact is so important that it may be worth our while to indicate precisely why this weakness in the anthropological and sociological sciences has occurred. The reason is that these sciences have arisen in the modern culture of the modern Western world. They have brought to the formation of their own methodology and their own conceptual apparatus the philosophical assumptions of this modern culture. No one for a minute can suppose that Spencerian sociology is independent of the philosophy of Spencer; nor can anyone suppose that the Comtian sociology has an independence of the Comtian philosophy. The same is true of all the major anthropological and sociological sciences of our modern Western world. Each has developed a set of technical concepts in terms of which the institutions of different cultures are classified and investigated. Thus all the facts of these other cultures are translated into the conceptual framework of a modern Western sociological science and its modern Western

culture. Hence, what one obtains often is not the ideology of the native culture that is being investigated but the empirical facts of this culture brought under the ideology of modern Western sociologists and their particular cultural and philosophical assumptions.

There is but one cure for this state of affairs. The methods of the modern logic of systems must be introduced into anthropology and sociology. This method works with a technique which leaves one's postulates indeterminate, through the methodological procedure which one uses, permitting one to approach a given culture and to allow the institutions of that culture and the conceptual interpretation and evaluation put upon those institutions by the people in the culture in question to determine the conceptual framework in terms of which that culture is understood. This permits us to have an anthropology and a sociology in which the different cultures of the world will be understood in terms of the conceptual framework and apparatus of the ideological theories of the people who created that culture.

It is precisely such a designation of the respective normative theories of the major nations and cultures in the world today which I attempted, in a rough sort of way and in a preliminary fashion, in my recent book, *The Meeting of East and West.* Despite all the errors of detail inevitable in so extensive a study carried through by one person, which experts in the special fields discussed will undoubtedly correct, this study none the less demonstrates that it is possible at the present time in our universities to inaugurate a course which will acquaint men with the intercultural problem of the world as a whole and bring them to other cultures and the presuppositions of these other cultures in a mood of sympathetic understanding. This alone will go a long way toward removing the dangers of the contemporary world. For if people thus educated should go into the government or into the meetings of the United Nations, they would, at least, give the representatives of other countries the feeling that, even when differences of opinion on ideological matters arise, at least the ideological assumptions of cultures other than one's own were sympathetically understood. In such an atmosphere of mutual respect and sympathetic understanding, the practical problem of setting up international agreements sufficient to control the technological discoveries of science could be solved.

IF EDUCATION is to be effective, however, an entirely new type of training of both scholars and students is necessary. Both scholars and students must be trained to think deductively, as well as inductively. Only if men learn how to think deductively, can they acquire the tolerant attitude and the open-mindedness necessary to comprehend the empirical cultural practices and institutions of a given people from the standpoint of the ideological assumptions of that people themselves. For each culture is a set of empirical social institutions and practices interpreted by a certain set of philosophical premises. To understand a given culture is to know its premises and to put oneself, at least tentatively, both imaginatively and

sympathetically into the standpoint of its premises. Training in the usual textual empirical inductive methods of the traditional research of the historians and in the inductive methods of empirical science is quite inadequate for this. In fact, it is not too much of an exaggeration to say that the weakness of much of contemporary education concerning the needs of our world, centers in the curse of the inadequacy of the traditional historical method in scholarship.

This method, because of its excessively inductive character, paying attention to texts and source materials and the words in texts, is continuously misleading the scholar and those who read his conclusions. The inductive character of the traditional historical method brings the historian and the social scientist to the subject-matter of history and of a given culture without the technical, theoretical concepts and assumptions of the people in question which are necessary to understand it. Thus, if the traditional scholar really uses his inductive method according to the sound prescriptions of this method, he comes out with nothing more than a lot of neutral, colorless facts. All the ideas and technically grasped theories necessary to comprehend these facts are lost. This is the reason why most of the current anthropological and sociological sciences and practically all of the results of the historical scholarship dealing with the different cultures of the world throw so little light on the perplexing problems of our time, which are so inescapably ideological in their character.

Actually, however, the errors of the present scholarship of our universities in the social sciences and the humanities are even worse than this. It is impossible even to record and classify the facts of history or of the diverse practices and institutions of different peoples without bringing these facts under concepts and theories. The only way to get pure facts, independent of all concepts and theory, is merely to look at them and forthwith to remain perpetually dumb, never uttering a word or describing what one sees, after the manner of a calf looking at the moon. For the moment one reports what one observes, at a meeting of historians or in a book written for sociologists, at that moment one has not pure facts but facts brought under concepts, and hence theory. Thus the social scientist's or the historian's aim at pure fact is a snare and a delusion. What one gets are not facts, but facts brought under some often uncritically examined, unconscious, theoretical assumptions of the sociologist or historian in question. As a rule, these theories are very speculative, since neither the social scientist nor the historian has the training or the method necessary to understand the technical, economic, political, theological, and philosophical theories which are being exemplified in the facts. Even if his theories are more critically examined, they are, none the less, his theories. Rarely are they the theories used by a people to conceive and evaluate the empirical facts exhibited in their social practices and cultural institutions.

Nor is this all. The followers of the inductive and the historical method, because of the excessively verbal character of the texts which they take as sufficient sources, are continually confusing an identity

of words used in different philosophies and different cultures with an identity of meaning. The fact, for example, that Locke speaks of a law of nature, even referring to Hooker when he does so, offers little proof of the thesis that Locke means by a law of nature what Hooker means or that Locke derived his meaning from Hooker. There will be no cure for these errors until people are trained to think deductively in the social sciences and history, as they are trained to do in the natural sciences and in philosophy when these are properly understood. Whenever one finds Locke talking about reasons or about mind or using any other word used by any previous scholar, one must immediately ask oneself the question, "What, upon the premises of Locke's philosophy, must this word mean?" Only if one learns to think deductively in terms of the premises of a given philosopher's philosophy, can one learn to know what he means by the words he uses.

TO LEARN to think deductively, as well as inductively, will not merely give us a complete and thorough scholarship. It is also necessary in order sharply to state the issues and conflicts of our world and thereby to understand precisely the basic nature of the problems with which we are concerned. To make this explicit, let us examine the classical normative theory of the culture of the United States and that of contemporary communist Russia.

The theory of the United States is made roughly explicit when one designates the postulates of its economic science, its political theory, its predominantly Protestant Christianity, and so on. Its economic science was formulated by Jevons, and later modified slightly by the Austrian School. Its traditional political philosophy goes back to John Locke. Its Protestantism, in so far as its doctrine departs from the doctrine of Thomistic medievalism, is a conception of the Christian religion rooted in the assumptions of modern philosophy. When one examines, technically and specifically, each of these doctrines which are deductively formulated theories, one finds that the basic postulates of the traditional cultures of the United States are not three independent sets of postulates but that instead they are interconnected in a single set of basic ideas and postulates. This common set of postulates joining the economic, political, and religious doctrines into one doctrine of a single culture is one's philosophy. This philosophy is, roughly, pre-Kantian British empiricism.

The technical economic theory, political theory, and religious, or anti-religious, doctrines of contemporary communist Russia are similarly rooted in an underlying philosophy, that of Karl Marx. Marxian philosophy, as is well known, is Hegelian in its dialectical theory of history and Feuerbachian in its materialistic conception of the content of history.

To understand the ideologies of the United States and contemporary Russia thus deductively is to be in a position to formulate sharply the ideological problem at the basis of the perpetual impasses which arise between Russian delegates and the delegates of the United States in the United Nations. The economic, political, and underlying philosophical premises defining the idea of the good society in the traditional cultures of the United States and of

contemporary communistic Russia are self-contradictory. The postulates of the economic science of Jevons and the Austrian School contradict the economic theory of value of Karl Marx. The political axioms of the present constitution of the U.S.S.R. contradict the axioms of the Declaration of Independence and the Constitution of the U.S.A. Similarly, the underlying postulates of pre-Kantian British empirical philosophy are incompatible with the post-Kantian philosophical assumptions of Hegel and Marx.

This means that the conflicts between delegates of the U.S.S.R. and the U.S.A. in the United Nations are truly serious conflicts, much more serious than most people have supposed, and that they cannot be resolved by either practical compromises alone or by a mutual understanding of each other's position and premises alone. In fact, the more the contemporary Russians and Americans come to understand each other's premises, the more the intensity of the conflict will exhibit itself. For when the basic assumptions of two different faiths contradict each other, reconciliation by practical expedients is unlikely, and reconciliation by mutual understanding is unequivocally impossible. Contradictories cannot be reconciled.

There is, however, a way of resolving such a difficulty. Only, however, by learning to think deductively and thus becoming capable of formulating such an international conflict in precise theoretical terms, can the way out be found. A clue appears, by way of contrast, if one examines certain other differences in philosophical premises when one applies the deductive method of inquiry to the diverse major cultures of the world. Then a situation other than that illustrated by the United States and Russia often arises. For example, in *The Meeting of East and West*, it has been shown that the basic philosophical premises and attendant economic, political, and religious doctrines underlying Oriental civilization are different from those at the basis of Western civilization, and yet these differing assumptions do not contradict one another. Thus the problem of reconciling the East and the West presents no serious logical or theoretical difficulty. It entails merely enlarging the ideology of the one to include that of the other. This, to be sure, is by no means an easy task, since it involves far-reaching changes, especially with respect to the all-sufficiency and perfection of the traditional claims of one's own religion and one's own political and economic doctrines.

But where the basic assumptions do not merely differ but contradict each other, as in the case of the social ideals of the Soviet Russians and the Americans, the changes must be even greater and are far more difficult to achieve, not merely practically but also theoretically. For a contradiction cannot be resolved by enlarging the ideological concept of one people to include that of the other. One set of assumptions does not permit the inclusion of its contradictory.

Such a desperately serious ideological conflict can be resolved, nevertheless. Similar problems occur continually in the deductively formulated, experimentally verified theories of the natural sciences, and the technique for resolving them is well known. One must pass from the assumptions of both of the contra-

dictory theories to a new set of philosophical premises which takes care of the facts supporting the two contradictory theories, without contradiction. This means that there can be no real intellectually constructive solution of the conflicts between democracies rooted in pre-Kantian philosophy and communistic Russia rooted in post-Kantian and post-Hegelian Marxism without passing on to a new set of assumptions which can take care of the merit of the communistic and the traditional democratic theories without contradiction.

Hence, the capacity to think about empirical data deductively, as well as inductively, must be made the primary concern of contemporary education. Before this capacity is obtained by both scholar and student, little can be accomplished. More of the present excessively inductive and textually verbal pseudo scholarship has the effect of merely throwing dust into the eyes of both the scholars and the readers. The more information which they gather by these means, the less use they can make of it, the more overwhelmed intellectually they are by it, and the less capable they are of understanding it. Nevertheless, the capacity to think theoretically and deductively is by itself of no use, unless one understands the technical content which goes into the deductively formulated theories of the different cultures of the world. For this understanding, one must be a master in the subjects to which these deductively formulated theories refer. To this end a mere mastery of languages and of dictionaries is quite insufficient. It is as absurd to suppose that a Ph.D. degree in philology or linguistics fits one to understand the philosophy of China as it would be to suppose that a Ph.D. in German fits one to understand the German texts of Einstein's theory of relativity. The basic cultural and ideological differences of our world go down to basic philosophical difficulties, and only scholars trained in the problems of philosophy and in the alternative answers to these problems, each one of which is reasoned out deductively, can hope to be competent to convey the standpoints of the cultures of either the East or the West.

But even more than an understanding of philosophy with the training in deductive thinking with respect to the theories of philosophy is required. One must also know technically the specific economic doctrines, such as the Austrian psychological theory of economic value or the Marxian labor theory of economic value, which go with these respective philosophies. The same is true for technical political and theological doctrines.

It will be said immediately that this is impossible for any one scholar or any one mind. There is no answer to this objection if the methodology of scholarship is purely inductive and verbal and textual. To acquiesce in the latter conclusion is to doom our civilization and mankind to extinction under a rain of atomic bombs within the lifetime of the younger generation.

THERE is no need to acquiesce in this counsel of doom from contemporary scholars. There is nothing whatever to prevent the introduction of a thoroughly adequate course in the methods of thinking, both inductively and deductively, in the fresh-

man year in any college or university. Part of such a course could be very profitably pushed back into the high schools and preparatory schools. During the last semester in Yale College, such a course, within the limits of one-half year, was taught to a class of six hundred, more than 50 per cent of whom were Freshmen. Providing the capacity to think deductively is mastered, there is no reason, so far as the restrictions of time are concerned, why any good student having subsequent year-courses in deductively presented philosophy, economics, politics, and religion, illustrated with concrete inductive materials, could not be taken to the basic concepts and postulates of the major philosophical, economic, political, and religious doctrines of the major cultures of the world with a thoroughness which would permit him sympathetically to understand all of these doctrines and later to master them technically.

The reason why this is not achieved now is because of the excessively inductive character of the historical method in the humanities and the traditional methods of the social sciences. The students are so overwhelmed with empirical information which is not theoretically digested, even by the professors who present it to them, that they never find the key concepts and postulates defining the theoretical standpoints and evaluations of the different peoples and ideologies. An early training in the capacity to think deductively will enable both scholars and students to understand the facts they come upon and to distinguish basic notions in any field from secondary, derived notions. Actually, this enlarged kind of training, permitting any person to know technically philosophy, economics, politics, and theology, not only for his own culture but also for the major cultures, could be achieved in a shorter time educationally than the present confusing methods and educational procedures require. The result would be that both scholars and students would be able to handle philosophical, economic, political, and theological ideas in history and in the diverse cultures of the world more like expert philosophers, economists, political scientists, and theologians, with the technical knowledge needed to understand them.

All this, even, is not enough. One people's ideology will, so far as the prescriptions up to this point indicate, be as valid as that of any other people's, even including the Germans', held spellbound by Hitler. Nor will these ideologies be fully appreciated as the people of any one of these ideologies actually feels it and loves it, if one merely grasps it technically.

Properly to understand any culture means not merely to know the basic philosophical premises defining its standpoint but also to be convinced that these philosophical premises are, for the people in question, a reasonable scientific generalization from the empirical data of their limited experience. Never is any culture understood, even when its indigenous ideology is grasped, unless the facts which led to its particular ideology are also ascertained. This means that the philosophy of any specific culture is grounded in its science, even when the people in question may be what we, in the West, have falsely called "primitive," without science in our more sophisticated

form. Any people notes the facts of experience and generalizes from these facts to a philosophy. Consequently, no philosophy of culture is completely understood unless the empirical facts behind the generalization are also ascertained.

This means that the present separation of the social sciences and humanities from the natural sciences must be unequivocally repudiated. No humanistic doctrine in any culture is understood unless the underlying philosophy of that culture is understood. No underlying philosophy is sympathetically and emotionally apprehended unless the empirical evidence and the process of generalization, essentially scientific in character, taking the people in question from the empirical facts noted by them to their basic philosophy, are also grasped. In short, as Socrates and Plato noted long ago, one's philosophy of the good in the social sciences and humanities is one's philosophical generalization of the empirically true in the natural sciences.

An education which connects the technical philosophical systems of the differing cultures and ideologies and their attendantly different economic, political, religious, and aesthetic ideas of the good with their scientific empirical background will not merely reconcile the humanities and the sciences, so that as the natural sciences produce new technological instruments, the humanistic social ideals necessary for the good control of these instruments will be present; but it will also provide an empirical, scientifically verifiable criterion indicating which set of philosophical premises has the generality and the deductive fertility sufficient to take care of all the facts noted by all the peoples of the differing cultures of the world. Thereby, ideological and cultural relativism, with its attendant demoralization with respect to international norms valid for all nations, can be transcended and escaped.

If the grounding of one's philosophy of culture in an empirically verified philosophy of natural science is not to be misunderstood, it must be emphasized that natural science must be taken in the broadest sense. This broad sense must include the empirical generalizations of so-called primitive peoples. It must also include the more purely empirical, qualitative, natural-history type of natural science as well as the more theoretical, quantitative, mathematical type. Also, it must specify how these two types of scientific knowledge are related.

To this end, purely empirical data in natural science must be clearly distinguished from inferred hypothetically and theoretically designated factors. Through all cultures, the purely empirical data of nature are the same, for the most part. It is largely what is scientifically inferred from some of these empirical data which makes the ideology of one culture different from that of another. A clear understanding of this situation should go far to sustain an attitude of tolerance toward philosophies of culture other than one's own.

WHAT happens is that people are continually identifying inferred factors in their scientific and cultural philosophy with purely empirically given data. The therapeutic for this prevalent disease is an inquiry, such as Bishop Berkeley pursued in his *Principles* and his *Dialogues between*

Hylas and Philonous, concerning the nature of purely empirically given fact. Such an inquiry shows conclusively that pure fact is merely the immediately apprehended continuum of experience, differentiated by the sensuous qualities delivered by the senses. The latter qualities are not common-sense external objects, unobservable scientific objects, or theistic religious objects; they are, instead, aesthetic objects in the sense of the impressions of early French impressionistic art.

This means that if natural science is to include and convey most effectively the qualitative, purely empirical part of its knowledge, it and our university curriculum must use impressionistic art. For impressionistic art, like much of the landscape painting of the Chinese, is the instrument *par excellence* for conveying the purely empirical data from which the theoretical generalizations of science and its attendant philosophy of culture are made.

In other words, an effective education for intercultural understanding must include, in addition to the five subjects previously noted, at least one course in the different types of the world's art. These types must encompass the Chinese intuitive and the modern Western impressionistic forms, both of which are supreme for conveying the purely empirical component of one's philosophy of science and culture. They must also embrace the more symbolical classical types of Western art, which are superb for the conveying of the theoretically inferred component of one's philosophy of science and culture. These diverse types of art can both exhibit literal scientific and philosophical truth known purely empirically and add persuasion to the analogical presentation of scientifically philosophical truth expressed literally only by more theoretical and mathematical means.

Such an education should be able to capture the hearts as well as the minds of men the world over, thereby adding affection to intellect and action in world understanding.

What Kind of National Science Foundation Shall We Have?

By DAEL WOLFLE

A Problem of Vital Concern in Higher Education

THE United States government is spending millions of dollars a year for scientific research. Most of this money goes into applied or developmental research, but not all of it. In each of the important research agencies of the government, fundamental studies and exploratory research are being undertaken in order to secure basic information which may later have practical developments. The government is now supporting studies in the physical, biological, and social sciences and in their engineering, medical, agricultural, and social applications.

Because government personnel and facilities are not adequate for the present volume of government research, contracts are being written with universities and industrial laboratories. Many of these are without specific directions other than "investigate this problem" or "study this field." Research proposals prepared by university laboratory scientists are in many cases approved with no effort on the part of the government agency to dictate how the research should be conducted or what specific questions should be investigated. The specter of government control is not at present a cause of major fear, because in many cases scientists have found the same freedom to investigate problems which they formerly found under university auspices. But the danger still exists that, at some time in the future, government research projects may be accepted or rejected on the basis of immediate practicality. This danger exists because the distinction between the practical exploitation of research findings on the one hand and the exploratory and necessarily undirected investigation of a field on the other hand is not clearly made by all who have administrative responsibility for the writing of research contracts.

Because many research contracts between universities and government agencies are now in effect, the time has passed for deliberation over the wisdom versus the possible dangers of Federal support of fundamental research. But the time is here for discussion of the most appropriate government machinery for supporting research studies. We can choose between two alternatives. Shall we continue to have most research which derives support from government funds selected by operating government agencies, such as the military services and the Department of Agriculture, or shall we have fundamental research primarily directed

by an agency specifically created for that purpose—a National Science Foundation?

It is the almost unanimous opinion of scientists that in the long run, a special agency, civilian-directed and specifically created for the purpose, provides safer and better machinery for co-ordinating the government's interest in research than do the research divisions of the military services and other operating agencies. To implement this idea, bills were introduced into the Seventy-ninth Congress which proposed the establishment of a National Science Foundation. None of those bills became law. But the idea has remained alive; the Eightieth Congress has under consideration several similar bills.

Two bills have been introduced into the Senate. S. 525, introduced by Senator Elbert D. Thomas of Utah, is identical with S. 1850 as that bill was passed by the Senate last year. S. 526, introduced by Senator Alexander Smith of New Jersey for himself, Mr. Cordon, Mr. Revercomb, Mr. Saltonstall, Mr. Magnuson, and Mr. Fulbright, is in a number of respects similar to a bill introduced into the Seventy-ninth Congress by Senator Magnuson. It is, however, a new bill.

Five bills have been introduced into the House of Representatives. H. R. 942, introduced by Representative Emanuel Celler of New York, is identical with S. 1850 as that bill was reported out of committee to the floor of the Senate last year. H.R. 1815, H.R. 1830, H.R. 1834, and H.R. 2027 are all identical with each other and with S. 526. The four identical House bills were introduced by Representatives Case, Mills, Priest, and Hays respectively.

Within these bills there are a number of points of difference. The five chief controversial points center around the type of administration, the patent provision, the question of state allocation of funds, the question of scholarships and fellowships, and the question of including or excluding the social sciences.

THE type of administration proposed in S. 526, the Smith bill, and its four companion bills in the House of Representatives authorizes the President to appoint 48 members to a National Science Foundation board. The 48 persons are to be distinguished in the fields of science, education, and public affairs, are to be chosen without regard to political, social, or religious factors, are to be selected so as to provide representation of the views of scientific leaders in all areas of the nation, and are subject to approval by the Senate. The Foundation is required to meet at least once a year. Its 48 members select nine of their own number to serve as an Executive Committee. The Executive Committee will meet at least six times a year. This committee is responsible for the selection of a Director of the Foundation. His choice is subject to approval by a majority of the members of the Foundation but is not subject to confirmation by the President or the Senate. This plan of administration makes the Director of the Foundation responsible directly to a part-time board of presidentially appointed scientists, educators, and men of public affairs.

In contrast, S. 525 proposes that

an Administrator be appointed by the President by and with the consent of the Senate. The Administrator will select a Deputy Administrator and Division Directors, each of whom are appointed by and with the advice and consent of the Senate. To advise and aid the Administrator, there is created a National Science Board composed of nine members appointed by the President, by and with the advice and consent of the Senate. Also serving on the National Science Board will be the chairmen of the Advisory Committees established to help with the work of each of the separate divisions of the Foundation. This plan makes the Administrator of the Foundation directly responsible to the President and through him to the country.

The provision in the four identical House bills is exactly the same as that in S. 526. The administrative structure proposed in H.R. 942 is exactly the same as that in S. 525.

Among the scientists there are advocates for both types of administration. Proponents of the 48-man board contend that the responsibility attached to membership on the board will mean that more competent and outstanding scientists will accept appointment than would accept membership on the advisory board under the S. 525 proposal. They contend further that the large board will ensure the Foundation against purely political appointment of a director and will provide guarantees against using the Foundation for the special interests of any particular group.

Proponents of the administrative plan contained in the Thomas bill, S. 525, contend that the appointment of an administrator by the President is in better agreement with customary ideas of good administration. They argue that the creation of a 48-man board will so diffuse responsibility that no one will be really responsible for the program of the Foundation, and they point out that practically all students of administration and government prefer an administrator to the 48-man board of the other bill.

Final decision between the two alternative plans will rest with the Congress. Knowing which plan is preferred by scientists and educators will help them to reach a decision.

THE second point of difference deals with the disposition of patent rights to inventions made in the course of research supported by the Foundation. S. 526, the Smith bill, authorizes the Foundation to write into each contract "provisions governing the disposition of inventions produced thereunder in a manner calculated to protect the public interests and the equities of the individual or organization with which the contract or other agreement is executed."

In contrast, S. 525 devotes a great deal more attention to the question of disposition of patents. By and large, the provisions of that bill are intended to guarantee that the right to patentable discoveries made in the course of research supported by Federal funds will be freely dedicated to the public. The question of patent provision was one of the most contested points of difference between the Magnuson and Kilgore bills in the Senate of the Seventy-ninth Congress. Discussion among scientists this year seems to have led to fairly general agreement that the patent provision

of the Smith bill is acceptable. This acceptance is based upon the dual ground that the whole subject of patent legislation should be treated in a separate bill and that fundamental research rarely leads to patentable discoveries anyway.

THE third point of difference centers around the way in which Foundation funds will be distributed among the various states or regions of the country. The Thomas bill specifies that not less than 25 per cent is to be apportioned among the states. Ten per cent of the total would be divided equally among the states. The other 15 per cent would be divided in accordance with the population of the several states. The Smith bill contains no such provision. The argument in support of the provisions of the Thomas bill is that the required state distribution would guarantee support to a number of the smaller research laboratories which need encouragement and development. Supporters of this provision fear that without it the bulk of the money available would be concentrated in the already strongest and best-equipped laboratories. Such concentration would defeat one of the long-run purposes of the Foundation, namely, to increase the number of competent laboratories available and to increase the number of places in which sound scientific training can be given.

A second feature of the state-distribution clause in the Thomas bill is the requirement that the 25 per cent allotted to the states be spent only in tax-supported institutions. Opponents of the provision label this whole idea pork-barrel politics. It is possible that a compromise might be worked out, requiring that a specified portion of the fund be divided among the states, but not requiring that the money be spent in tax-supported institutions. Such a compromise would provide additional funds for the small, privately supported institutions scattered over the country, but might well increase the difficulties of administration.

SCHOLARSHIPS and fellowships are the fourth point of difference. All bills before either house of Congress at present provide authorization for both undergraduate scholarships and graduate fellowships. Two witnesses testifying before the House Committee on Interstate and Foreign Commerce recommended deletion of the provision for undergraduate scholarships. It is possible that an economy drive may bring a stronger effort in this direction.

Most scientists and educators believe that provision for undergraduate scholarships constitutes one of the most important features of the bills. Several studies have shown unequivocally that family finances determine in fair part whether a high-school student of great ability will or will not go to college. Scholarships authorized by the present bills will provide an opportunity for outstanding high-school graduates to enter college for scientific training regardless of the size of their family fortunes. The country now has a very large deficit of young scientists, created by the fact that many who were in training and about to enter training for scientific careers were taken for military duty. Scholarships are necessary to make up that deficit.

THE last major difference in the bills is the question of whether to include or exclude the social sciences. As presently written, S. 525, the Thomas bill, excludes the social sciences. In introducing that bill, however, Senator Thomas expressed the hope that the social sciences could be included. H.R. 942 specifically includes a division of the social sciences. S. 526 and the four companion House bills do not require support of research work in the social sciences but would permit it. The wording of these bills provides for support of the "mathematical, physical, medical, biological, engineering and other sciences."

The question of why any argument exists over the inclusion or exclusion of the social sciences deserves special attention. The tremendous importance of solving some of our social problems is generally recognized. It is more important to learn how to make war unnecessary than to learn how to win it. Greater benefits can come from learning how men can work co-operatively, productively, and harmoniously together than can come from learning how to heat our homes or run our plants by atomic energy. Yet the proposal that the Foundation support research studies in social areas meets strong resistance. There seem to be three reasons.

In the first place, the ability of the social scientists to solve important social problems is doubted by many non-scientists and by many scientists in other fields. In support of this doubt is the undeniable fact that the social scientists have not advanced nearly so far in the solution of their problems as have the natural scientists in the solution of theirs. It may be argued that experimentation is more difficult and that the problems themselves are more complex, but the fact remains that social-science research has not led to results so dramatic and so generally appreciated as, for example, the natural-science research which resulted in the development of penicillin, radio, or the atomic bomb. Those who believe in the scientific method as a means of increasing our understanding of natural processes argue that the same methods applied to social phenomena will in time bring much knowledge that can be applied to the solution of important human problems. They have factual support for this argument in various fields of social science, but the accomplishments are small in comparison with what remains to be done.

A second factor responsible in part for the effort to exclude the social sciences is the fact that the distinction between research on human problems and the practical control of human affairs is not generally recognized. Social scientists are largely to blame, for they have failed to educate their scientific and lay colleagues about the distinctions between research on social problems and the a priori solutions offered by social theorists.

The difference between a physicist and a radio repairman is generally recognized. So is the difference between a botanist and a farmer. But the difference between a scientist studying social problems and a salesman, an industrialist, or a labor leader who tries to control the behavior of his fellow men is not. Obviously, it is only the research interest in social problems that should be supported by a National Science Foundation. Just as research in elec-

tronics may help the radio man and research in plant genetics may help the farmer, so may research in social science help the legislator. The later application of research findings may contribute materially to the welfare of the country, but the possible applications should be clearly distinguished from the original research. This is as true of the social sciences as of the natural sciences.

A third reason for the lack of support for the inclusion of the social sciences is the lack of effort by social scientists to have themselves included. When Science Foundation legislation was being considered by the Senate last year, many social scientists adopted the praiseworthy attitude that the passage of the legislation was in grave doubt, that an effort to include the social sciences would further jeopardize the legislation, and that they did not wish to fight for inclusion of the social sciences when the penalty was possible loss of the whole bill. Other social scientists were apathetic. Still others stood on the side lines with a wistful expression, as though they were waiting to be invited into the National Science Foundation.

First the physical sciences and, in later centuries, the biological sciences, had to fight to gain recognition and respectability. Now it is social science's turn. When social scientists demonstrate that they understand research methodology and can apply it, when they make clear the distinctions between research attacks on social problems and idle theorizing about those problems, when they strive vigorously and unitedly for recognition as scientists, they can win scientific status. A recognized place in the National Science Foundation would be both a symbol of recognition and an opportunity to demonstrate that recognition is deserved. That place will not come to social scientists unless they work for it.

FINALLY, we should examine the question of who is interested in a National Science Foundation and survey the points in which each group is particularly interested.

The public has a large stake in the creation of a National Science Foundation but is basically apathetic toward such legislation. Regardless of their attitude toward the Foundation, congressmen will not receive many letters of approval or criticism from the public. The fruits of research are much more remote from the thinking of the average citizen than are the effects of labor legislation, tax reduction, or continuation of the O.P.A. The Science Foundation bills therefore are not of immediate importance to most voters and hence are not of immediate importance to many congressmen. The public at large is not an important factor for or against any Science Foundation bill.

Scientists themselves are almost unanimously in support of a National Science Foundation. Most of them are willing to accept the patent provisions in any of the bills. They are somewhat divided on the question of the best type of administration and on the question of state distribution of funds. A substantial majority believe that the social sciences should be included, but many fear that their inclusion is unobtainable at present. Almost unanimously they favor a provision for granting undergraduate scholarships.

While scientists differ among themselves on some of these points, they consider the establishment of the Foundation more important than the details and are willing to accept majority judgment in settling those differences. Scientists have organized an Inter-Society Committee on a National Science Foundation, which includes representatives of a large number of national scientific and educational organizations. Its purpose is to bring agreement among scientists and to present to the Congress a statement of the features on which scientists agree.

Industry is another group vitally interested in the establishment of a National Science Foundation, for industry depends very largely on the practical development and exploitation of the results of scientific research. In general, the industrial users of the products of scientific research favor the type of patent provision contained in the Smith bill. This is to them one of the most important features of the bill, for it will allow the retention of patent rights by an industrial laboratory which engages in research supported in part by the Foundation. In general, industry is opposed to the state distribution of funds as provided in the Thomas bill and to the inclusion of the social sciences. The reason for their opposition on this last point has already been in part explained and may in part come from the fact that industrially useful applications of social-science research are at present rare; therefore they see no reason to divide the funds with the social sciences.

EDUCATORS of the country are in general in support of the Foundation. Many of them are not particularly interested in the type of administration or the patent provision. Probably most of them favor the state distribution of funds provided in the Thomas bill. They are certainly in favor of the inclusion of funds for undergraduate scholarships. Most of them favor inclusion of the social sciences.

The educators are a particularly strategic group in any consideration of a National Science Foundation. Politically, they can be a very strong group, for members of Congress are sensitive to the expressed opinions of the college presidents, educational leaders, and educational groups in the states from which they come. If the educators of the country use this power, they can to a very large extent determine whether or not a National Science Foundation is established; and if it is, what its features will be. If the educators of the country believe with anything like unanimity that one type of administration now proposed is superior to the other, that provision for state distribution of funds should or should not be included, that provision should or should not be made for undergraduate scholarships, and that the social sciences should or should not be included—if they make their wishes on these points known, they can wield a very large influence on the bills now before Congress. There is a challenge to the educators of America.

The New Program in Yale College

By WILLIAM C. DEVANE

Deviates in Its Special Features from the Orthodox Program

EARLY in the spring of 1945, the Course of Study Committee of Yale College presented its report to the General Faculty, and, after full discussion, the programs of studies proposed for the Bachelor of Arts degree were accepted with very little amendment. The report was the result of four years' work by a committee of nine men from various divisions of the Faculty. The way for the report had been very carefully prepared. Many eminent persons in the educational world had been consulted; hearings with departmental representatives had been held; and assurances had been obtained from the University that the programs would be supported. Accompanying the report was a time schedule for the operation of its provisions. The time schedule was necessarily conjectural at many points, but, so far, its arrangements have not been upset by the unexpectedly large numbers of returning students. The plan called for the inauguration of the programs with the entering class of 1950, in the fall of 1946, and for the development of the programs through the sophomore, junior, and senior years in each of the following three years.

Accordingly, the programs were begun in September, 1946, but the new arrangements were applied only to those Freshmen who entered Yale directly from secondary school. The purpose of this partial application was twofold: part of the reason was that veterans coming to college after experience in the war needed a special kind of treatment, with the requirements adjusted individually to their cases; the other part was that the administration was very happy to try the new programs and courses upon a smaller group of students than usual. The programs were therefore put into effect for approximately seven hundred Freshmen. In the meantime, however, a number of courses which had been planned for the succeeding years were put into the curriculum as electives on an experimental basis. The experience has proved very valuable, both to the instructors and to the college administration.

The plans of study adopted by the Faculty called for three separate programs for the B.A. candidates: the Standard Program, for the use of the great majority of the students; a program of closely integrated courses which has come to be known as Directed Studies; and an honors program for the upper two years of college, called the "Scholars of the House Program." A beginning has already been made in each of these. The first two of them have been instituted for the Freshmen direct

from secondary school, and the third has accepted about a dozen men at the junior level upon an experimental basis.

The Standard Program concerns itself with three main phases of the student's education: basic studies, three in number, asking that the student prove himself proficient, either through excellent work in school or a course in college, in English, in a modern foreign language, and in formal thinking (mathematics, or logic); the program of distribution, requiring the student to take a full-year course in each of the following categories: Science I (chemistry and physics); Science II (astronomy and geology); or Science III (botany, zoology, and psychology); Social Science; The Ancient World; Literature and the Arts; The Interrelationships of Knowledge; and third, the major field, requiring the student to concentrate half of his work in his last two years in a single subject or field, to complete a senior essay or project in that field, and to pass a comprehensive examination at the end of his senior year.

THE Standard Program, as it is outlined here, is an orthodox one, and exists in its essentials in many colleges. There are, however, several special features which make the program in its operation peculiar to Yale. Many colleges, for example, require their students to take two science courses, one from the inorganic and one from the organic sciences, but each college organizes its courses according to its own traditions and desires. At Yale, the ideal (not always achieved) is a full laboratory course in each of the three sciences mentioned earlier, treated topically and somewhat historically. A good many of the newer techniques have been adopted in our teaching of the modern languages; we make considerable use of native speakers, linguistic methods, and machines.

Perhaps one of the chief features of the Standard Program is the large number of courses in philosophy which are available to the student. For example, the student may satisfy the requirement in formal thinking by a year's course in logic; he may satisfy his requirement in The Ancient World by a course in Greek philosophy; and he may satisfy the requirement called The Interrelationships of Knowledge in his junior or senior year by one of several courses in modern philosophy. It is probable that a number of colleges insist that their candidates for the B.A. degree have some acquaintance with the ancient world. At Yale, the requirement in this area may be satisfied by one advanced course in Latin or Greek, or by a year's course in classical civilization. The courses offered in classical civilization are so arranged that the student may, if he so desires, link them with his probable major interest. For example, if the student is interested in political science, he may satisfy his requirement in the ancient world by a course in Greek and Roman political ideas; if he is interested in history he may take ancient history; if he is interested in literature he may take the Greek and Roman epic, the Greek and Roman drama, and so forth. The reading in these courses is, it should be said, in English, but the courses are substantial and valuable.

There are three other features

of the Standard Program which seem to be worthy of remark: the courses under the rubric "Interrelationships of Knowledge"; the summer-reading plan; and the principle of anticipation. One of the requirements of the program of distribution has the somewhat cumbersome title just mentioned—Interrelationships of Knowledge. The desire of the Committee on the Course of Study was to have the College Faculty offer each year at least five courses each of which should attempt to provide, as an example, a modern synthesis of several subjects, or indeed of a whole area of knowledge. One such course should be taken by each student in his junior or senior year. One of the purposes of such courses was to counteract the relatively intense specialization demanded by the major field. As yet, courses in this group are not required, but as experiments we have inaugurated four such courses under the following titles: Contemporary Civilization, taught by the Department of History; Ideologies of the Modern State, taught by the Department of Political Science; Philosophy, Science, and Culture in the Modern World, taught by the Department of Philosophy; and Art in Civilization, taught by the Department of Art. We were fortunate in having excellent teachers for these courses, and they have proved immensely popular. At present, we are preparing such additional courses as Modern Philosophy, the Concept of Property, and the Development of the Sciences.

The plan for summer reading has excited a good deal of attention. At Yale the idea is not altogether a new one. Before the war we had the practice of imposing a summer reading list upon those undergraduates who had been absent from too many classes during the year. The results were very good; many parents and some students voluntarily requested such lists. Then, too, before the war a considerable number of our students had utilized the summer vacations to prepare themselves for their comprehensive examinations, or to gather materials for their senior essays or projects. The new plan is merely an attempt to regularize what already existed. In the summer, between freshman and sophomore years, the student reads from an extensive list of books which have won the approbation of time. If he does not pass the examination upon these books in September, he goes upon "general warning" and is therefore ineligible for athletics and other activities. In the summer, between sophomore and junior years the student reads in the area of his major interests and takes an examination in the fall. In the summer, between junior and senior years the student prepares for his comprehensive examination or makes progress in his senior essay or project. Upon application, the student may substitute a reading program in any foreign language for the more formal task. At present, we are preparing reading lists for the summer of 1947.

A WORD needs to be said about the principle of anticipation at Yale. It is a cardinal belief with us that the work of the student at school and college should be viewed as a whole. We have, accordingly, set up a system of exemptions whereby excellent work at school in the last two years, validated wherever possible by honors scores on the entrance examina-

tions, absolves the student from the appropriate requirements in the basic studies and from certain of the requirements for distribution. This procedure puts a premium upon good work and rewards the student with a greater degree of freedom in the choice of his studies, and, in some cases, allows him to take his Bachelor's degree in a shorter time than four years. The anticipatory principle seemed necessary in view of the rather heavy burden of requirements, but there were more positive reasons for putting it into effect at once.

THE program known as Directed Studies is an experiment in integration of the work of the first two years. Room in the program is provided for forty students, and they enter the plan upon their own volition. Once in the program, they have little choice of courses. The first year of work consists of five courses: Science I (a combination of chemistry and physics); a special course in mathematics of a historical and philosophical character; a special course in literature; a foreign language; and, at the center, a discussion course in philosophy which attempts to tie together the other courses the student is taking and to analyze the natures of scientific, mathematical, linguistic, and literary truth. The discussion courses in philosophy are small, and the teacher is in the position of the commentator in Thornton Wilder's "Our Town," as he points out the implications of what is happening. We are now in the middle of the first year of this program, and all seems to be going very smoothly. We are at work at present upon the courses of the second year, in which the student will take Science III (a combination of botany, zoology, and psychology) and new courses in Studies in Society and in History, continue his foreign language, and again take a discussion course in philosophy. During this year, the philosopher directs the student's attention to biological, social, and historical aspects of truth by the same methods as those employed in the first year. In the work of each year, philosophy is the binding element, and the attempt is made to achieve a modern integration of the studies involved. For the work of the last two years, plans have been laid for several large field majors, but so far the courses in these majors have not been worked out in final detail. The object, however, will be to set up comprehensive major fields which will offer a far broader opportunity than is offered by subject majors or even the interdepartmental majors which are now in operation.

THE new curriculum at Yale calls for one other program—the so-called "Scholars of the House Program." This is an honors plan, confined to the last two years of the student's career. A limited number of students who have exhibited their quality in the first two years may apply for admission by this plan. The application must be accompanied by a program of work which the student means to pursue during his last two years. If the student is accepted, he is absolved from further formal requirements and is given the freedom of the college in the matter of auditing courses or lectures. He is also given a faculty adviser (usually a person of his own choosing) who is responsible for his progress. The

student's responsibility consists in conferences with and papers for his adviser; in wide and stiff reading in his field and topic, and in the preparation of an essay which will justify the independence he has been granted. Also, he must face, at the end of his senior year, an examining committee appointed especially for the occasion. It is not planned to begin this program until 1948, but there was a strong demand, and a few students have been admitted on an experimental basis. The dangers for the student in the plan are very real, and great care must be taken in the selection of the scholars. The plan requires, also, a considerable amount of devotion and resolution from the teachers.

SUCH are the programs of study for the Bachelor-of-Arts degree in operation at Yale. With the advantage of hindsight, we are now in a position to make a few observations upon it. The first comment is one that may be made today at almost all colleges, namely, that it is a pity that the newly devised programs have to be inaugurated at a time when our colleges are staggering under an immense burden of students. However, if the new programs are not begun now, all the planning will have been lost. A second comment is more particularly applicable to the Yale plan: It is perhaps too complex and ambitious, and certainly expensive. In view of the financial conditions which the colleges and universities may soon have to face, it might have been wiser to trim the whole program to a smaller size—to demand only sixteen full-year courses instead of twenty for graduation, to give such special attention as is involved in the senior essay and the comprehensive examination to only a small proportion of each class, say twenty per cent, to abandon the idea of small discussion courses in the major field except for exceptionally gifted men, and to increase the size of divisions in the fundamental courses of the first two years. But our students deserve the care we have planned for them, and we shall continue to give such care as long as possible. The greatest immediate danger to our plans is that we shall not be able to obtain an adequate number of teachers to conduct them successfully.

Vocational Problems of Undergraduate University Women

By WILMA T. DONAHUE AND WILMA ELDERSVELD

Report of a Questionnaire Study at the University of Michigan

THE undergraduate woman is far more concerned about the choice of a vocational objective than most college and university faculties have been willing to recognize. Indeed, few schools have undertaken systematic investigations to determine the importance or the magnitude of the vocational problems of their students. This paper shows that the interest in these problems among the students at the University of Michigan far exceeds the facilities available for meeting it. Men and women returning from military service are forcing a degree of attention hitherto unknown on the problem of counseling and guidance.

Traditional attitudes of college faculties are characterized mainly by the belief that college students, without skilled assistance, evolve their own best vocational goals during the course of their college careers. This view is widely held despite a great deal of evidence to the contrary. A smaller but growing group of faculty members recognize that students can be assisted materially through expert vocational guidance, and that such guidance heightens their motivation for college work. It is because of the traditional disregard for the value of counseling, and for other reasons, often financial in nature, that existing facilities are characteristically inadequate.

At the beginning of the war, the use of aptitude tests by the military services, in an attempt to place each inductee in the right type of training program, called the attention of the young men and women remaining in college to the possibilities of measuring potentialities and of selecting college programs to make the best use of a particular pattern of aptitudes. In the spring of 1943, the students at the University of Michigan requested that an aptitude-testing program be provided for them. This request was met by the University, and a group testing and counseling program was offered to all freshman, sophomore, and junior students who wished to participate.

Historically, the time at which this series of tests was administered is of significance in relation to the attitudes of the students examined. Because of the war emergency, there was pressure on every young person to prepare himself for a job as quickly as possible, in order to make some contribution to the war effort. The men, being almost certain to enter military service, showed relatively little interest in making a civilian

vocational choice. The women, on the other hand, may have shown a somewhat greater interest in vocational preparation by reason of the greater pressure toward job placement. Approximately two thousand students took the examinations, but this paper concerns itself only with the 1,496 women in the group (558 were Freshmen; 517, Sophomores; and 421, Juniors), because the data obtained from the men were not felt to be sufficiently representative.

A series of achievement and aptitude tests was administered along with a counseling questionnaire in which the student recorded personal information. An analysis of the answers to certain of the questions in the counseling questionnaire has been made to help determine the magnitude of the problem which choosing a vocation presented to undergraduate women at a large coeducational university. This paper is a discussion of the proportion of the women students who have made vocational choices, the character of the questions asked about vocations, and some of the effects of having made a vocational choice. It is not a study of the nature of the choice made.

THE counseling questionnaire contained specific questions relating to family, education, vocational plans, and other personal data. The student was told to answer the questions rapidly, and it was explained that the answers would be used as an aid in counseling and in the selection of a vocational goal.

Three of the questions have been selected for analysis in this paper. Two of the three, "List in order of importance your vocational choices," and "List any questions you have regarding your future occupational or vocational plans," are obviously vocational in nature. The third question, "What do you consider to be your greatest problem?" might or might not elicit responses pertaining to vocational problems. The questions asked by the students were analyzed to determine whether, in the light of all the information given in the questionnaire, they represented a desire for information about the vocation chosen or whether they were questions designed to help in making a decision regarding the choice of a vocation. The former type was classified as "information" questions and the latter as "indecision" questions.

The questions have been studied for the total group and for the freshman, sophomore, and junior women separately. It should be recalled that the tests were taken near the close of the school year so that the Freshmen were nearly Sophomores, the Sophomores were almost ready to choose a field of concentration, and the Juniors had already had nearly a year of specialized study in a chosen area.

A vocational choice was judged to have been made if the student indicated either a specific occupational objective, as, for example, laboratory technician, or a generalized area of interest, such as biological laboratory work. As Table I shows, of the 1,496 women included in the group, only 10 (.7 per cent) failed to indicate whether or not they had made a vocational choice. Although the majority (62 per cent) had chosen a vocational goal, more than one-third (37 per cent) had made no choice. As would

be expected, a larger proportion of the lower-division women, Freshmen and Sophomores, than of the upper-division women, had not made a decision. However, nearly one-fifth (18 per cent) of the Juniors had not selected an occupational objective after nearly a year of concentration in some academic field.

TABLE I

VOCATIONAL-CHOICE STATUS OF UNDERGRADUATE WOMEN

Class	Percentage		
	Made	Not Made	No Answer
(1)	(2)	(3)	(4)
Freshman	48	51	0.9
Sophomore	61	38	1.0
Junior	82	18	0.0
Total	62	37	0.7

TABLE II

PERCENTAGE ASKING QUESTIONS AND TYPES OF VOCATIONAL QUESTIONS ASKED

Class	Percentage Asking Questions	Percentage	
		Information	Indecision
(1)	(2)	(3)	(4)
Freshman	40	46	54
Sophomore	47	52	48
Junior	42	60	40
Total	43	52	48

IT IS not possible in our data to separate those who had no vocational questions from those who may have ignored this item on the questionnaire. All "no entry" items are therefore considered to mean that the student had no questions.

No restrictions as to the kind of vocational question which might be asked were imposed upon the students. Upon inspection, it was found that the questions could be classified according to the two general types mentioned previously. If a student asked a question about the amount of annual salary she would earn as a laboratory technician, which she had indicated as her vocational choice, the question was classified as an "information" question. On the other hand, a question asking about the relative desirability of the work of the dental technician and of the nurse was rated as an "indecision" question.

A large proportion of the group (43 per cent) had vocational questions which they wished to have answered (*see* Column 2, Table II). More of the Sophomores had questions than did Freshmen or Juniors. This is probably a reflection of the imminence of the selection of a concentration field which, naturally, was related for many students to future vocational plans.

Questions of the "information" type were asked somewhat more frequently than the "indecision" type. As might be expected, the type of question asked bore some relationship to class placement. The ratio of the number of students asking "information" questions to those asking "indecision" questions increases as the student progresses through the University. The Freshmen asked more of the "indecision" than of the "information" type, while the reverse is true of the Juniors. The ratios of "information" to "indecision" questions were as follows:

Class	Ratio
Freshman	.85
Sophomore	1.08
Junior	1.50
Total	1.08

Considering the group as a whole, a slightly larger proportion (45 per

cent) of those women who had not made a vocational choice asked questions than of those who had made a choice (42 per cent), (*see* Columns 2 and 3, Table III). The proportion of students in each class who asked questions was about the same, irrespective of whether a choice had been made, except for those Sophomores who had not yet determined upon a vocational objective. This, again, was no doubt related to the pressure of having soon to make a decision regarding concentration.

THE fact that a decision regarding a vocational goal has been reached does not relieve the student of a desire for further discussion of the vocational plan (*see* Table IV). There is, however, something of a change in the character of the questions asked. If a student has made a vocational choice but still asks vocational questions, there are about two chances out of three that the questions will be of the "information" type. If the student belongs to the group which has not made a decision as to vocational objective and asks questions, there are almost three chances out of four that they will be questions of the "indecision" type. It is probable that the one-third of the group who had made a choice and who asked questions of an "indecision" type represents those students who still felt considerable uncertainty about the choice made.

Counting the number of students who have not made a vocational choice and the number who have vocational questions does not, of course, give any indication as to the importance of the vocational problem in relation to other problems which the student may have. More than one-fourth (27 per cent) of the total group of women tested indicated that they considered their "greatest problem" the selection of an appropriate vocational goal. The incidence of the vocational problem as the "greatest problem" was slightly higher for sophomore women than for either Freshmen or Juniors.

TABLE III

EFFECT OF HAVING MADE A CHOICE OF VOCATION UPON THE TENDENCY TO ASK VOCATIONAL QUESTIONS

CLASS	PERCENTAGE WHOSE CHOICE IS		NUMBER	
	Made	Not Made	Made	Not Made
(1)	(2)	(3)	(4)	(5)
Freshman	42	40	270	283
Sophomore	43	56	314	198
Junior	42	41	345	76
Total	42	45	929	557

TABLE IV

THE EFFECT OF HAVING MADE A VOCATIONAL CHOICE UPON THE KINDS OF QUESTIONS ASKED

CLASS	PERCENTAGE		NUMBER ASKING QUESTIONS
	Information	Indecision	
(1)	(2)	(3)	(4)
	Choice Made		
Freshman	66	34	112
Sophomore	69	31	134
Junior	67	33	144
Total	67	33	390
	Choice Not Made		
Freshman	27	73	112
Sophomore	30	70	110
Junior	29	71	31
Total	28	72	253

Twice as many of those who had not made a vocational choice rated their greatest problem as vocational in nature as did those who had made a choice (*see* Table VI). There was slightly more concern among Juniors who had not selected a goal than among Freshmen in the same category. The Freshmen had at least one more year before having to make a definite decision regarding specialization, while the Juniors had only one more year in college in which to complete training for a vocation. Of the group who had made a vocational choice, more of the Sophomores than of the members of the other classes considered their vocational plans their "greatest problem." This probably reflects uncertainty concerning the desirability of the goal selected. The Sophomores still had time to change their plans and so may have been more ambivalent over their choices.

TABLE V

THE INCIDENCE OF THE VOCATIONAL PROBLEM AS THE "GREATEST PROBLEM"

CLASS	CHARACTER OF PROBLEMS—PERCENTAGE OF CLASS GROUP		
	Vocational	Other	None, or No Answer
(1)	(2)	(3)	(4)
Freshman	27	55	18
Sophomore	30	50	20
Junior	24	50	26
Total	27	52	21

TABLE VI

EFFECT OF HAVING CHOSEN A VOCATIONAL GOAL ON THE INCIDENCE OF THE VOCATIONAL PROBLEM AS THE "GREATEST PROBLEM"

CLASS	PERCENTAEG WHOSE "GREATEST PROBLEM" IS VOCATIONAL AND WHOSE CHOICE IS		NUMBER IN CHOICE GROUPS	
	Made	Not Made	Made	Not Made
(1)	(2)	(3)	(4)	(5)
Freshman	15	38	270	283
Sophomore	24	40	314	198
Junior	20	43	345	76
Total	20	40	929	557

IN AS much as these data were gathered from three different questions in the counseling questionnaire, much of the information necessarily overlaps. That is, a single student may indicate her concern over her vocational problems in only one of her answers to the three questions, whereas another may repeatedly make responses which would indicate a desire or need for help on several or all of the questions studied. If we add together the 390 women who have made a choice but who indicate that they still have questions, the 89 who have made a choice and who have no questions but do have a vocational problem, the 253 who have not made a choice and who have a question, and the 304 who have not made a choice but who have no questions, we find 1,036 women who were, at the time of the examination, real or potential candidates for assistance. Since 304 had no questions (even though they had not made a choice), the effective number of candidates for help lay between 732 and 1,036, or from 50 per cent to 69 per cent of the total number examined. Finally, in order to arrive at an approximation of the volume of the total demand, there should be considered the 140 who had made a choice and who stated no further question or problem. Some of the members of this group had

received previous assistance from the counseling agencies at the University.

A systematic investigation of the answers to vocational questions of 1,496 undergraduate women indicates that the choice of a vocation represented a problem of major concern and interest to a significantly large proportion of them. The number of women who had made a choice of vocation increased from class to class, but their concern over their vocational plans was not terminated when a choice had been made. Irrespective of whether a vocational goal had been selected, between 40 and 50 per cent of each class asked questions of a vocational nature when given the opportunity. The type of question asked was to some extent determined by the vocational status of the student. If a choice had been made, the majority of the students asked questions which represented an attempt to obtain further information about the vocation selected. If a choice had not been made, a large proportion of the questions asked were for the purpose of gaining help in making a decision between two or more possible objectives.

More than one-fourth of the women studied indicated that they considered their greatest problem to be the choice of a suitable vocation. Fewer of those who had made a choice of vocation than of those who had not, rated their vocational problem as of first importance; but 20 per cent of the women who had come to a decision about their future occupations still rated their vocational choice as their greatest problem.

The sophomore group showed the greatest degree of concern, compared with the other two groups. This was reflected in the larger number asking questions and in the larger proportion rating their greatest problem to be vocational in nature even after a choice had been made.

THESE data would seem to indicate that colleges should provide various types of vocational guidance in order to meet the expressed needs of students for assistance with their vocational problems. The large number of questions asked requires that a wide range of occupational information be made available. The students do not know much about occupational opportunities; they are limited imaginatively to the three or four major professions. Vocational and occupational lectures, a vocational library staffed by specially trained librarians, and a faculty adviser in each department of the colleges and schools, whose responsibility it is to consult with students regarding the occupational opportunities in their own particular fields, represent some of the facilities needed to help the students gain the information they need.

It is necessary, however, to go beyond a mere vocational- and occupational-information system. The nature of the questions asked indicates that some sort of vocational-advisement procedure should be employed through which the student may determine his or her vocational aptitudes. A large proportion of the "indecision" questions were related to the problem of whether or not the student had the skills and aptitudes for success in a particular occupation. Professional vocational counselors are needed to measure aptitudes objec-

tively, to interpret the significance of the measurements in terms of the particular attributes of the person counseled, and to help the student gain sufficient information about various vocations so that a vocational decision will not be made on scattered and incomplete knowledge and so that the vocational goal will be a realistic and satisfying one.

[Vol. XVIII, No. 4]

Biography - An Integrating Subject

By CHARLES CHRISTOPHER MIEROW

A Practical and Timely Suggestion

THERE is widespread agreement that overspecialization and undue departmentalization are poor educational policy. It is particularly unfortunate that undergraduates are often permitted to spend an undue proportion of their time on a single subject, to the detriment of their general education. What is needed is a synthesizing agency, a comprehensive view, an integrating course or subject.

Within recent years, attempts have been made to provide a broader grasp of a field of instruction by the device of so-called "general" courses in science, mathematics, literature, or even in language. In principle, such attempts are admirable. In actual practice, they have failed to do what was expected of them. There are several reasons for this. Perhaps the most fundamental is the fact that they are ordinarily introduced in the early years of the high-school course, with the hope that they may serve as prognostic devices. The theory is that twelve- or thirteen-year-old students who have studied no foreign language (and who know little or nothing about the grammar of their own tongue) will be inspired by the abstract discussion of linguistic materials and the confusing conglomeration of a vocabulary made up of several unrelated languages. The almost inevitable consequence is an immediate distaste for the study of languages. How can children be interested in the statement: "The word *chant* comes from Latin and French"? Or by the question, "What do you suppose these Anglo-Saxon words mean: *sweoster*, *heofon*, *freondscipe*?" In courses in general science or general mathematics, the most that can be hoped for as a result of such comprehensive presentations of a vast field is a smattering of elementary presuppositions and the habit of careless generalization. Accuracy and the mastery of fundamentals are sacrificed.

There is a place for such "general" courses and they may be made of real value to serious students. That place is in the senior year of a college or university course, when those who have already studied several sciences, or Latin, French, and Spanish, or the masterpieces of literature in Greek, German, and English, may be given the final satisfaction that comes from

fitting together into one completely satisfying picture the scattered pieces of knowledge they have acquired as a basis for their education.

THERE are, however, other ways of emphasizing the fact of the unity of learning. One such means is by the study of biography; not the literary form called by this name, but the lives of "great men." The study of the lives and achievements of men who have profoundly influenced the course of history, who have spoken words that still re-echo in our hearts today, binds together the scattered threads of many studies into one.

Consider how Aristotle took all knowledge for his province and achieved for himself a synthesis of the existing lore of the past. Upon this as a basis, he erected the edifice of his own great contributions, notably in the fields of logic, biology, and ethics. Small wonder that his was a name to conjure with, and that he has maintained his dominance over the human mind for some two thousand years.

When we read of the life of Leonardo da Vinci, we are amazed by the versatility of his genius. Nothing human was alien to him, whether art or invention, war or peace, literature or music. In this universal man, we behold the synthesis of the sciences and the integration of the arts.

Pascal reveals in his own person the harmony of science and religion. His practical achievements in devising the adding machine and the public bus are balanced by his solution of the problem of the cycloid. His lucid literary style is still a model for French prose composition. His scientific temperament and achievement afford a strange contrast to his mystical religious experience.

In our own land, Benjamin Franklin exemplified a rare combination of journalist and man of science, businessman and diplomat, moralist and man of the world. We have not mentioned Francis Bacon or Goethe or Voltaire. But it is not merely in such exceptionally versatile and many-sided men of genius that we perceive the unity of learning. Every liberally educated person is evidence of the fact that education was made for man, not man for education.

The study of biography serves most effectively in breaking down artificial barriers of race or color or creed or time. We see and understand that Confucius in China, Buddha in India, and Jeremiah in Palestine were all—though unknown to each other—making similar contributions to man's intellectual and moral and spiritual welfare. The goal was the same, although each offered a different road for reaching it. We forget that each was a representative of a separate human family. The Arabian prophet Mohammed, and Charles, the Teutonic king of a Christian nation, had remarkably similar traits. They were animated by like ambitions and aims, and subject to similar passions. When we consider the self-sacrificing life of the *Poverello*, St. Francis of Assisi, who for Christ's sake became poor and homeless, we recall with a sudden shock of surprise that the Prince Siddhartha, better known as Guatama the Buddha, also left home and kindred and sacrificed a throne that he might save his fellow men.

Another merit of the study of

[*Continued on page 226*]

Students' Ratings of Instruction

By W. S. TAYLOR, FRANK H. HANKINS, AND ALICE A. LAZEROWITZ

A Study Made at Smith College

SOME experience with students' ratings, and some reflection on them, may suggest an answer to the question, Should students rate and report upon the instruction they receive?

In a summary of a quick survey of evaluation of faculty services, W. W. Charters reported in this JOURNAL in December, 1940, that students were being asked to rate their courses or teachers, or both, at many colleges and universities.[1] More recently, the number of references in the *Education Index* shows that students' ratings are used in many public schools.

In the spring of 1944, the Smith College faculty voted that a committee be appointed to study and make recommendations about students' ratings of courses. The authors of this article were appointed to this task, and we wrote to the presidents of 67 colleges and universities, asking about their experience with such ratings. Fifty-one replies were received. They indicate no system of ratings at 26 institutions, and one or more systems, some of them used only for a time or for part of the institution, at 25, including 5 named in the 1940 study. The institutions reporting no ratings are:

Amherst, Connecticut College, Goucher, Haverford, Illinois College, Knox, Massachusetts State, Middlebury, Mills, Mount Holyoke, Oberlin, Swarthmore, Vassar, Brown, George Washington, Harvard, Northwestern, Pennsylvania State College, Princeton, Rutgers, Stanford, and the Universities of California, Iowa, Minnesota, Pennsylvania, and Wisconsin.

Those reporting some ratings are:

Antioch, Bennington, Bryn Mawr, Claremont, Dartmouth, Hunter, Sarah Lawrence, Stephens, Sweet Briar, Wellesley, Wells, Wheaton, Williams, Bucknell, Colgate, Columbia, Cornell, Ohio State, Purdue; Universities of Illinois, Michigan, Oregon, and Washington; Wesleyan and Yale.

Three of the spokesmen for institutions that report no system of ratings think that the faculties would object to ratings of individual courses by the students. Many of the spokesmen, however, express a desire to learn more about this method of securing students' reactions.

In a few of the institutions which report some use, ratings are sponsored by the administrations alone and obtained through conferences in the offices or homes of presidents or deans. More commonly, the ratings are sponsored by the faculties and obtained through questionnaires submitted to all the students.

Eighteen of the spokesmen who report ratings offer estimates of them. According to these estimates, at Sarah Lawrence, Bucknell, and Wesleyan

[1] "Sizing up the Faculty," XI, p. 460.

the ratings were not found valuable. At Antioch and Hunter the results cannot be appraised yet. At Sweet Briar and the University of Washington so many teachers were dissatisfied that ratings are no longer required; nevertheless, at the latter institution most faculty members now prefer students' ratings to any other measure of teaching. These 7 negative or qualified estimates are offset by the estimates from 11 institutions—Bennington, Dartmouth, Stephens, Wells, Wheaton, Williams, Cornell, Purdue, Illinois, Michigan, and Yale—that the ratings are valuable or highly valuable. No estimates were received from Bryn Mawr, Claremont, Wellesley, Colgate, Columbia, Ohio State, and Oregon.

The rating forms used by the various institutions range from simple forms asking two or three questions to elaborate analyses of teachers' traits, each gradated 0–100. Obviously, either the form or the method used may determine the success or failure of the ratings. Since many of the institutions that have tried ratings did not say what form and method they used, no significant statistical analysis of the successes and failures is possible.

COMMITTEES of the faculty at Smith College obtained some ratings from the students in 1926 and 1934. Many members of the faculty disapproved of these ratings. The results were considered by the administration, however, and revealed a number of excellent teachers whom the administration had not sufficiently appreciated. A typical judgment of such a teacher was that, without fanfare, he gave and demanded such good work that the students developed real interest in the subject-matter and respect for the teacher. The results were made available also to the teachers and enabled a number of them to correct their assignment loads or helped them in other ways.

For the two summer terms of 1943 and the first summer term of 1944, the Student Curriculum Committee, not a faculty committee, asked the students to evaluate their courses. In 1944, the student committee gave each first-term teacher an opportunity to learn the ratings of his courses. Upon learning of that plan, the faculty committee arranged that each teacher who used this opportunity should receive a post card which invited his estimate of "the value of these ratings for you, for the students, and for the institution."

The returns from these teachers were few but suggestive. Only a third of the students' questionnaires had come in, apparently because many students were leaving or were otherwise occupied. A number of teachers, too, had left town, or were busy, or, we assume, were opposed to the idea of ratings by their students. Nevertheless, out of 45 teachers addressed, 16 called to learn their ratings. These 16 included every one for whom there were many ratings. Eleven of the 16 returned their post cards. Nine of the 11 found the students' replies helpful, and one, possibly helpful, to the teacher, for one or more of the following reasons: The replies indicated what seemed to meet the students' needs; they gave clues concerning time spent in study; they yielded some honest and revealing negative judgments; they included specific criticisms of classroom pro-

cedure; and they revealed reactions to lectures, readings, examinations, and marks. One teacher learned that members of his class had a wrong impression about the marks, and another teacher, that members of his class thought the marks too high. Five of the 11 teachers thought that the ratings developed the students' active interest. Five teachers did not see any particular value for the students. Ten teachers thought that more ratings would be valuable for teaching and learning, or for cooperation between faculty and students, or for both of these reasons. One teacher—perhaps one who received too few returns—marked these ratings for the teacher, the students, and the institution alike "about *D*+."

The 1943 ratings were informal notes or essays. The 1944 ratings were on an objective form. According to their committee, the students preferred the objective form.

THE principal arguments against ratings run as follows. First, good teaching cannot be measured accurately through ratings. The qualities of good teachers are highly individual, and the values of a given course are difficult to appraise even by experts. Standards of judging courses will vary with the different educational demands of the judges. Different types of students need different types of teachers. Whether they get what they want from a teacher or course depends in part on what they want; and they may not want what is best for them.

Second, undergraduates' ratings of teachers and courses are undependable: Such ratings may be careless. They may indicate little more than personal likes and dislikes, sometimes quite unreasonable ones. The student's attitude toward the subject or the college, the difficulty of the course, the amounts of work, and "spoon feeding," all tend to bias evaluations. Students may rate courses according to the marks they received. The campus reputation of the teacher may determine the student's appraisal. In general, undergraduates are too immature to distinguish between entertainment and teaching, between popularity and usefulness.

Third, adverse criticisms state that interpretation of ratings is difficult. For example, how are ratings of excellent and poor, received for the same class, to be weighed? Fourth, ratings make students more self-important and critical than teachable. Fifth, ratings are bad for teachers: They may unduly embarrass, discourage, or inflate the teachers. When teachers feel they are being tried before an unreliable tribunal, relations between them and their students may deteriorate. Once these ratings are in the hands of administrators, the teacher who has felt independent enough to maintain a level of teaching which prevented his course from being large might find himself thrown into unwilling competition for students. Thus ratings may increase the tendency for teachers to become politicians. Sixth, each instructor who wishes may himself conduct a questionnaire or otherwise secure students' reactions about his own work. Consequently, no system of ratings is necessary for a whole institution, even if it were desirable.[2]

[2]Limitations of space made it unwise to use the long footnotes appended to the next few paragraphs by the authors. A list of the references may be obtained, by writing to the Assistant Editor.

THE principal arguments for ratings are corroborated by persons who have gathered ratings systematically. The arguments are these: First, although students' judgments are imperfect, no other judges know, as the students do, how the class goes from day to day. An official visitor sees the class work a few times only, if at all, and his presence may either embarrass or inspire the teacher untypically.

Second, researches on students' ratings, as published in the educational journals, find them, on the whole, dependable and useful. Some of the findings which relate to dependability are: Constancy in ratings over a period of years correlates well with constancy in the structure and subject-matter of a course rated. Students' ratings agree well with systematic administrative ratings and with ratings based on studies of examinations given. Probably, students' ratings are more accurate for the very good and the very poor courses than for the rest, but they are somewhat discriminative even for these others. Several investigators find no significant "halo effect" and no significant relation between the teacher's sex, his popularity in extra-class activities, the judged difficulty of his course, the severity of his marking, and the students' ratings.

Third, systematic ratings secured over a period of years indicate a trend of reaction for each class. Moreover, in the aggregate, errors of individual judgment tend to offset each other. Because such data are in general more representative, they are more useful to teacher or administration than the few and casual opinions which are usually all that is available; they represent the kind of information often sought in vain by committees on tenure and promotion.

Fourth, ratings are of value to the teacher: First, however biased or incorrect student judgments may be, those judgments profoundly influence the student's learning, and the teacher should know what the incorrect opinions or unfortunate attitudes or unreasonable expectations are. Second, ratings often reveal points about teaching or about a course which the teacher recognizes as just but which were unknown to him. Valuable constructive suggestions sometimes emerge. Third, "the peculiar conditions under which the college teacher works deprive him of the stimulation and criticism that ensure at least some increase of competence in other professional men."[3] For this reason, ratings stimulate interest in teaching, helping good teachers to be better. Fourth, because they emphasize the common interests of students and teachers, ratings may reduce the psychosocial distance between them; some studies indicate that students appreciate this confidence shown them and, on the whole, respond conscientiously. Fifth, teachers with high standards may be protected by ratings. Actually, many students are critical of "loafing" courses, and often judge the crowded course not to be a good course. Thus ratings may reduce the present emphasis on large class enrollment as evidence of teacher success, and make it the best politics to do one's work well.

Fifth, ratings protect students against absolutistic tendencies in their

[3] Wilson, William R. "Students Rating Teachers," JOURNAL OF HIGHER EDUCATION, III (February, 1932), p. 75. This is a report of a faculty rating experiment at the University of Washington.

teachers and protect teachers from irresponsible opinions voiced by a few.

Sixth, whatever the inadequacies of this method of evaluating courses and teachers, they are fewer than those of other methods now current. In colleges and universities generally, teachers are being judged for promotion, salary, and tenure, largely on the basis of whatever student opinion the administrations are able to learn. Without systematic ratings, administrations are often forced to rely on inadequate impressions, inadequate because they are gained from very few students or because they are based on the campus and administrative activities and contacts of teachers rather than on a knowledge of their teaching.

ALTHOUGH the majority of the Smith College faculty, judging by a recent adverse vote, do not agree with us, we feel that the evidence and the various arguments together suggest the following conclusions: Systematic ratings by students can be valuable for the teacher. For the administration, also, they have more value than the casual or isolated comments of students about their instructors which must be depended upon without ratings. Moreover, they help the teacher and the administration to co-operate in their common interest.

Equally effective teachers differ so widely that ratings should aim primarily at evaluating not personal qualities and methods but results.

The results of teaching include all the education, concrete and abstract, intellectual and emotional, which students derive from their teachers and their courses. Perfect measures of these results are impossible. Useful measures, however, are available.

These measures are relatively simple scale-questionnaires which cover students' estimates of time spent in preparation for a course, the significance of its content, general good results gained from it, outstanding points about the course, and special comments. The questionnaires also classify all the students, so as to permit weighing their estimates according to their personal qualifications.[4]

At the time the students' ratings are collected, each teacher should be requested to give his estimate of the class, and any other suggestions that would facilitate interpretation of the ratings. The tabulation should be supervised by a competent and disinterested person. Whoever supervises the tabulation should let each teacher know the ratings of his courses, the students' norms for similar courses, his standing in comparison with that of other teachers, and any suggestions for his courses. This information should also be given to the committee on tenure and promotion.

[4]We have drawn up such a scale-questionnaire and can send a copy to any one for return postage. Inquiries should be sent to W. S. Taylor, Pierce Hall, Northampton, Massachusetts.

· With the · Technicians ·

Oklahoma University Solves a Housing Problem[1]

The University of Oklahoma is no exception, it is full to overflowing with students, mostly veterans. The fall enrollment was nearly ten thousand, as compared to a normal student population of about half that number. The situation is complicated by the fact that a great many of the veteran students have their families with them and must have places to live. Naturally, in view of these facts, the university has a huge housing problem. However, it has been more fortunate than many institutions in meeting this situation.

The city of Norman, where the university is located, was also the home of two large naval bases during the war. Now these bases have been taken over by the university. Classes are being held on these "North and South Campuses," as they are designated. A great many students and faculty members are also housed in these former naval quarters. The bachelor officers' quarters at the south naval base have been divided into two-room apartments and taken over by families, of both students and faculty members. There is unlimited housing in barracks for single students. Considerable remodeling is going on, in order to provide apartments for married students and their families. However, the type of housing which exists at these bases at present is unsuited to families with children. No cooking facilities are yet available at the naval bases, although cafeterias are in operation.

The answer to the housing problems of students and faculty who have families is a new housing unit known as "Sooner City." Located just off the main campus, on university property, this "city" consists of three hundred single prefabricated houses and two hundred double ones. Arranged in compact rows, the group of houses constitutes a small community, with an estimated population of thirteen hundred people. It is populated almost entirely by veterans, the only exceptions being those faculty members who could not otherwise be housed. Some forty houses are being used by the faculty, while all the rest are occupied by veteran students and their families.

The single-unit houses consist of a bedroom, living room, kitchen, and bath—all of tiny proportions, but quite usable and convenient. The shower is a particularly desirable feature. The double units have two bedrooms, a larger living room, kitchen, and shower. Each is an individual house, with its own tiny yard. Grass is now growing in these yards and further landscaping and planting of shrubbery and trees are now in progress.

The houses are rented furnished, but most of the tenants have added to the furniture provided. Heating is taken care of by several small gas

[1]Reported by Donald V. Allgeier, College of Business Administration, University of Oklahoma.

heaters. There is an automatic hot-water heater in each house, and a two-burner, gas hot plate for cooking. An ice refrigerator is provided. The shortage of electric refrigerators and gas ranges has made it impossible to secure these appliances in sufficient quantity for the housing project. However, the housewives manage very nicely with the facilities they have. Some have their own ranges and others have secured small ovens to use on top of the stove.

Because it is a compact unit, occupied by people with common interests and problems, Sooner City has set up its own city government, with the full approval of University President George L. Cross.

A series of "town meetings" has been held by the residents of the city. At the most recent of these a city council was elected, consisting of one representative from each large block of houses. The council will consist of eight persons in all. Candidates were permitted to file for office and to campaign actively, if they so desired. In some of the blocks the election was closely contested, and, in one case, resulted in a tie vote.

The newly elected council will elect its own chairman, who will simply be known as "chairman of the council." He will be the chief administrative official of the community and will preside at future town meetings. It is contemplated that the councilmen will receive compensation for their services, although the exact amount and the manner of providing the revenue have not yet been determined. The term of office for council members is one semester.

The City Council of Sooner City was elected in accordance with the provisions of the city charter. This charter was drawn up by residents of the community and has been tentatively approved by university officials. It is now being submitted, in its final form, for official approval. It is the "constitution" under which the citizens of the community are governed. This charter allows the city the privilege of providing rules, or laws, for the conduct of its inhabitants and for the regulation of its own internal affairs. The city will also have the power to regulate business activities within its limits, if this is desired.

The charter may be amended at any time, by a two-thirds vote of the electorate. The citizens of the community also have the power of referendum, and the council is subject at all times to the town meeting. The council may call a town meeting, when necessary, or the citizens may do so by means of a petition signed by twenty-five members of the community. Regular town meetings will still be scheduled.

In order to take the burden of routine government off the town meeting, the council will represent the city in all dealings with the officials of the university. Any grievances, or requests for added services, will be presented to the proper authorities by the council. The council is expected to function much as do other city councils or boards of aldermen. Many small problems will arise, with which the council will cope. It is hoped that some very valuable experience in practical government will result.

Sooner City is a pleasant place in which to live. In the daytime the streets resound with the cries of

children playing. Women visit across their back yards, so that the housing unit has the appearance, and the camaraderie, of a small town. Its town meetings are spirited affairs, with no one hesitating to speak his mind.

A "corner grocery" now exists on the edge of the area. The University is considering the maintenance of a laundry near by. Residents of the community are attempting to set up a co-operative grocery store, in addition to the one already there.

Telephone and mail service are now available to the citizens. Ice, milk, and newspaper delivery men make the rounds of the city every day.

The local chapter of the American Legion has set aside funds for equipping a playground for the children of the community. However, this project must wait on availability of materials. When the playground is put into operation, it will be on a vacant lot, just adjoining the city. Attempts are also being made to set up a nursery school.

The residents of Sooner City are comfortable. They have adequate, even pleasant, housing, at very low cost. They live only a short walking distance from their classes. The University is proving very co-operative, and is continually making additions or improvements, to add to the comfort of residents.

Of course Sooner City is only a temporary housing project. Most of its residents will move out when better housing is available. However, the cheerfulness and co-operative spirit of those living there now make the city "home" to them. In thus providing for the comfort and convenience of students and faculty and their families, the University of Oklahoma has done a great deal to solve the housing shortage and to help its deserving veterans get an education.

The Sociologist and the Use of Visual Aids[2]

For the purpose of finding out what use is being made of audio-visual aids in the teaching of sociology, a questionnaire designed to secure first-hand information concerning the use of slides and motion pictures and related audio-visual aids[3] was sent to 126 departments of sociology in universities and colleges.

Copies of the questionnaire were mailed to departments of sociology in five different types of institutions:

	Number
1. All of the large state universities and a few of the so-called "A and M" and state colleges which have large departments of sociology	35
2. All the small state universities and colleges[4]	18
3. All the large privately endowed universities.	24
4. A sample of the smaller universities and colleges[5]—departments which have been offering ten or more courses in sociology during the years 1940–44	39
5. Municipal colleges and universities and a few Negro and Catholic institutions, the returns from which were not sufficient to justify their use in this report	...

Ninety per cent of the departments of sociology receiving copies of the

[2]Reported by Ray H. Abrams, Department of Sociology, Wharton School of Finance and Commerce, University of Pennsylvania.

[3]Other types and methods of presenting visual materials are of course in general use—such as the direct presentation of charts, graphs, maps, pictures, etc., in the classroom. There is no implication in this article that slides and motion pictures are superior or preferable to such older methods. A few men responding to the questionnaire mentioned the satisfactory use of the reflectoscope.

[4]"Large" denotes those institutions which had an enrollment of three thousand or more students, according to the American Council on Education volume on *American Universities and Colleges* (Washington, D. C., 1940). "Small" refers to those institutions with less than three thousand enrolled.

[5]Rhode Island, for example, has a state "college" and not a university.

questionnaire replied. Every top-ranking state university and every one of the large privately endowed institutions is listed in the returns. A few state schools which did not reply are of slight significance so far as sociology is concerned. The thirty departments in the small colleges represent practically all of the better-known departments in the schools in this category.

Of the 99 departments whose questionnaires are used, approximately 30 per cent possess their own collection of slides. Proportionately more of the departments of sociology in the large privately endowed universities have slide collections (39 per cent) than departments in any of the other schools (28 per cent, large state; 24 per cent, small state; and 27 per cent, small private). The departments of sociology in two of the large state universities possess the largest collections (1,700 and 1,000 slides), and a few departments in other types of schools also possess relatively large collections.

The 29 departments of sociology which reported having private departmental slide collections listed the subjects dealt with by slides as follows:

Anthropology and ethnology	20	Population	5
Community	2	Public health	1
Crime	4	Rural sociology	5
Culture	2	Social problems	5
Ecology	2	Race	5
Housing	4	Regions	1
Latin America	1	Urban sociology	8
Marriage and the family	2		

Only 8 of the 99 departments of sociology have film libraries of their own, with a total of 35 films. In the 29 state universities, one department of sociology owns 6 films, another 3; among the small state universities, one department has one film; among the large privately endowed universities, one department has 10 films, and another one; in the small privately endowed colleges, one department owns 6 films, another 5, and another 3. Twenty-two of these 35 films are anthropological in character. These are distributed over 9 departments, while, as stated previously, 20 departments have slides on this subject.

All but five of the 29 large state universities report that their institutions have collections of slides and films. Among the small state institutions 9 have such collections. Eleven of the large privately endowed schools have film libraries, but only 6 of the small privately endowed schools have this advantage. Obviously, the large state institutions lead in this field.

Unfortunately, it was not possible to secure uniformly accurate data concerning the size of these collections and the number of slides and films which are sociological in character. However, as might be expected, the big collections are in the large state universities. The size of some of these collections runs into the thousands. One state university, for example, has 425 sets of slides, 20,000 individual slides on various topics, and 3,500 films, and its program is constantly expanding.

The following list of universities which publish audio-visual aids catalogues indicates that in this regard the state universities are taking the initiative:

Universities of Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri,

New Jersey, New York, North Carolina, Northwestern, Ohio, Oklahoma, Oregon, Pennsylvania College for Women, South Carolina, South Dakota, Syracuse, Tennessee, Texas, Utah, Vermont, Wisconsin.

Practically all of the institutions provide or make available, in one way or another, projectors, screens, and the like. Only 3 departments (one small state university and two small colleges) stated that they did not have access to a motion-picture or slide projector. However, in a number of cases the amount of labor and time consumed in securing and carrying equipment from one building on the campus to another discourages the use of visual aids.

Of the 99 departments represented in this study, 18 mentioned specific annual amounts of money granted for their individual use. Since in the state universities which possess film libraries there is frequently an arrangement whereby departments may borrow or rent for a nominal fee, the figures on money allotted for visual aids are rather misleading so far as these particular schools are concerned. However, for the majority of our sociology departments no money is available at all. The total for the 99 departments is about $1,000 per year. It would be interesting to know how other departments fare in this respect.

The data gathered on the number of times slides and films are used by sociology departments during one year is summarized as follows:

1. A greater proportion of the departments of sociology in the large privately endowed universities use slides (57 per cent) than in any other type of school herein considered. About 43 per cent of the departments in the large state universities and 40 per cent of the departments in the small colleges use slides. Only 24 per cent of the departments in the small state schools make use of slides.

2. If we consider the number of times the slides are actually used by departments of sociology in the various types of institutions, neither the average nor the median can fairly be used as a basis of comparison. Eliminating the skewness in the data, the large state universities are using slides slightly more frequently than the others—about seven times per year. There seems to be no correlation between the size of the department slide collection and the number of times the slides are actually used.

3. A slightly higher proportion of the departments in the small state schools show the use of motion pictures than in any of the other schools—63 per cent. However, the differences are not sufficient to be of great significance, the departments in the other schools averaging about 55 per cent.

4. Motion pictures are shown, if we think of representative departments rather than the three or four very exceptional ones, about 5 or 6 times per year by departments of sociology in the top-ranking institutions, be they large or small, state or private.

5. The data on the comparative use of slides and motion pictures indicate that, as might have been anticipated, the movies are more popular than the slides. Fifty-six of the 99 departments use the movies and 42 the slides.

The departments in the large state universities have several advantages which departments in other schools ordinarily do not have. The film libraries, for example, owned by these institutions make it relatively easier to procure visual aids. In spite of this fact, no greater proportion of departments in the large state institutions shows motion pictures than in the other schools. With one excep-

tion, the sociologists who are in the large state universities which possess the best film libraries are not the sociologists who are making the most extensive use of films.

The following is a list of the courses, in alphabetical order, and correlated with the number of departments of sociology that use slides or films (one or both) in connection with them:

Anthropology and ethnology	21	Industrial sociology	1
Community	5	Latin America	1
Child welfare	5	Peoples of the Pacific	1
Criminology	13	Population	2
Comparative cultures	1	Public opinion	1
Ecology	3	Race relations	12
Family	9	Rural sociology	8
Housing	3	Social problems	18
Introductory sociology	22	Socialization process	1
Institutions	1	Southern regional sociology	1
		Urban sociology	21

Of the 99 colleges and universities represented in this study, about 25 per cent use visual aids in the Introduction, Anthropology (and related topics), and Urban Sociology (Ecology, Housing, etc.). It was not possible to correlate these data with the number of schools which are offering those courses listed in this table.

No doubt there are many difficulties in the way of presenting slides and motion pictures. One paragraph in the questionnaire was designed to secure some information about some of the difficulties:

> Please state whether your classrooms are, in general, suitable and equipped for the projection of slides and motion pictures, or whether you must move your class to special rooms when showing slides or films. Do you experience difficulties in securing personnel to operate machines? Do these factors limit and discourage the use of slides and films in your department?

Of the 99 departments represented in this study, about one-third specify difficulties with respect to classroom facilities. The proportion is about the same regardless of the type of school. Sixteen state that the rooms are inadequate. The problem of securing operators for the machines seems negligible since it was only mentioned by 5 departments. Twenty-one specifically stated that it was no problem.

It is not possible to weigh the various factors which are responsible for the lag in the use of visual aids, but the following seem to be significant: lack of classroom facilities; necessity for moving classes; in five cases, lack of operators; scarcity of good slides and films on sociological topics; difficulties encountered in ordering from a "mail-order catalogue," without a previewing; details and time involved in renting and securing slides and films; details and trouble connected with borrowing projectors; lack of funds; and lack of interest.

While in general there seems to be no correlation between the various geographical divisions of the country and the use or lack of use of these visual aids, of the five very old traditional large eastern privately endowed universities, only one uses slides (about 6 times per year). All of them combined show two movies per year. For the most part, the top-ranking departments of sociology in the country, with few exceptions, make practically no use of the visual aids discussed in this paper in any way whatsoever.

·The·Reporter·

JUST before Ellen Wilkinson, Britain's Minister of Education, died of a heart attack, she put her signature on a plan for building schools that will cost $96,000,000 in 1947, and $4,000,000,000 in all, during the next fifteen years.

A GIFT of $400,000 from the estate of Mrs. Lucie Stern for construction of a residence hall for men students has been received by Stanford University. A provision of the gift is that the university is never to permit any discrimination of race, color, or creed in the assignment of students to the hall.

THE Board of Trustees of Goucher College has authorized the construction of parts of two classroom buildings and a residence hall, acting on the policy that partial construction of permanent buildings is more economical than the erection of temporary buildings to serve until permanent structures can be built.

NINE Western writers and editors will conduct the third annual Regional Writers' Workshop at the University of Denver, June 16 to July 18. There will be five different sections: the general session, the short story, the novel, non-fiction, and the poem. Those interested in attending the workshop should make application early, since registration is limited.

A NEW course in health instruction, which all non-veteran students will be required to attend, will be given this spring at Hamilton College. Planned as part of Hamilton's new athletic policy, the course will cover such topics as nutrition, prevention of disease, sex and reproduction, and mental hygiene. Part of the class time will be devoted to question periods in which students will be encouraged to request information on any personal or general problems.

A LABORATORY of applied geophysics and geochemistry has been established at the Pennsylvania State College. The course in geochemistry is believed to be the first ever offered by an American academic institution.

THE University of Pennsylvania is launching a drive for $32,000,000 to provide buildings and increased endowments for various departments.

THE Ohio Academy of Science will hold its annual spring meeting at Marietta College, May 1–3. The Academy is composed of all sections: zoology, plant science, geology, medical sciences, psychology, physics and astronomy, geography, chemistry, mathematics, anthropology, and the junior academy for high-school science teachers and students.

REQUIREMENTS for admission to next September's freshman class at Muhlenberg College have been amended to include passing scores in the Scholastic Aptitude Test of the College Entrance Examination Board. The

achievement tests of the College Entrance Examination Board will not be required except of students competing for honor scholarships.

A BUREAU of Research in Humanities and Social Development has been established at the University of Denver. Its function will be to promote and co-ordinate research in anthropology, the arts, communications, literature, psychology, social science, and areas which include both social and natural sciences.

AT THE conclusion of a statewide survey of community nursing, the W. K. Kellogg Foundation has made a grant of $60,000 to the Wayne University College of Nursing. The money will be used for advanced training for instructors in schools of nursing and in-service training for nurses, so that they can improve themselves professionally without leaving their jobs, thus increasing the shortage of nurses.

A SPRING conference, centered on the theme "Education and Human Relations in a Technological World," will be held at New York University, April 19 and 20. The meeting, which will be open to the public, is sponsored by the Alumni Association of the University's School of Education. Topics to be discussed include teacher and student strikes, labor strikes that affect education, peacetime uses of atomic energy, and prospects for world peace through the United Nations.

A STUDY of the faculty regulations governing extra-curricular activities of students is to be undertaken at Allegheny College during the second semester of 1946–47. The study is necessitated by changing campus conditions resulting from the presence of ex-servicemen and of an unusual number of married couples on the campus. It will be made by a joint faculty-student committee.

THE American-Scandinavian Foundation is offering a number of fellowships for graduate study in Denmark, Iceland, Norway, and Sweden for the academic year 1947–48. Application blanks and complete information will be mailed on request to the Director of Students, American-Scandinavian Foundation, 116 East Sixty-fourth Street, New York City.

A GIFT of $20,000 from the Michael P. Grace Foundation has been received by the University of Notre Dame to help defray the expenses of inaugurating the work of the Mediaeval Institute, which was established in September, 1946, as a distinct academic unit of the University. It is primarily a research institution devoted to an intensive study of the life and thought of the Middle Ages, the critical analysis of available sources, the editing of unpublished materials, the publication of scholarly studies, the tracing of currents of thought and movements of civilization, and, in general, whatever may advance knowledge and understanding of Catholic mediaeval culture.

A LIMITED number of predoctoral fellows and postdoctoral associates will be appointed by Battelle Memorial Institute to conduct investigations of a fundamental character in the Battelle laboratories in 1947–48. This is a part of a training program which

has been in operation since 1931. Appointees devote their full time to their own research projects in the Battelle laboratories under the guidance of the Battelle technical staff. The projects must be fundamental or exploratory, leading to the discovery of scientific principles or the gathering of significant new data. The findings are to be prepared for publication as a service to science and industry. Inquiries may be addressed to the Institute at 505 King Avenue, Columbus 1, Ohio.

THE endowment of a professorship in the Faculty of Arts and Sciences of Harvard University has been made possible by a gift of $250,000 from Samual Zemurray to Radcliffe College. The professorship will result in the appointment of the first woman professor in the Faculty of Arts and Sciences. The chair will be known as the Samuel Zemurray, Jr., and Doris Zemurray Stone-Radcliffe Professorship. Terms of the agreement between Radcliffe and Harvard specify that the person appointed shall be a distinguished woman scholar, appointed by Harvard, with the understanding that Radcliffe may suggest candidates and that the Radcliffe Council concur in final appointments. The agreement further stipulates that the professor chosen shall, as part of her academic responsibility, take a special interest in the intellectual life of Radcliffe College, particularly of the Graduate School.

THE world's first supersonic laboratory equipment duplicating actual conditions prevailing from fifty thousand feet to one hundred miles above the earth is now under construction at the University of California, with funds provided by the Office of Naval Research. The equipment includes two supersonic wind tunnels; a pilot model, scheduled for completion shortly, which is good up to 70,000 feet, and in which speeds three times the velocity of sound can be simulated; and a larger tunnel, three inches square, which will duplicate conditions up to fifty miles and simulate speeds over five times the velocity of sound. The latter tunnel will be finished some time this year. To cover the range from fifty to one hundred miles, a molecular beam apparatus, the design of which has yet to be determined, will be constructed. In this technique, a molecular beam, produced by heating air or other gases to high temperatures, will be hurled against a model placed in a high vacuum simulating the low pressures of extremely high altitudes.

A SUMMER school for credit and financial executives will be held at the University of Wisconsin from August 17 to 29. The purpose of the program is to interpret economic and financial policies, to broaden the knowledge and perspective of business executives, to aid them in the development of their managerial and administrative abilities, to encourage the improvement of leadership qualities, and to stimulate habits of orderly thinking about business problems. The program of study will consist of three annual periods of two weeks each. Four study subjects will be required each year and, in addition, a series of round-table conferences will be held. A diploma issued jointly by the National Institute of

Credit and the University of Wisconsin will be granted to students who attend three full sessions, complete all the prescribed courses and all the extension problem work assigned, and pass a final oral examination.

A NEW series of Rosenbach Fellowship Lectures will be given at the University of Pennsylvania in late April and early May. The general subject will be "Standards of Bibliographical Description for Rare Books." In place of the former practice of having a single Rosenbach Fellow for the whole series, three leading bibliographers, Curt F. Buhler, James G. McManaway, and Lawrence C. Wroth, have been appointed and will be responsible for one lecture each.

IN AN attempt to develop entrance examinations that will test art ability rather than previous training, the Cooper Union Art School has arranged a series of experiments with projective testing techniques which are being conducted under the supervision of the Cooper Union admissions office by Molly R. Harrower, creator of the Harrower adaptation of the Rorschach Test. The Harrower adaptation of the Rorschach (ink-blot) method, with accompanying lists of multiple-choice alternatives for the subject to check according to what he "sees" in the ink blot, is being used. An adaptation of the Goodenough Figure Drawing Test, in which the student is simply asked to draw a figure, is used as a corollary experimental test.

Some of the questions to which answers are sought are: What aspects of the personality are emphasized in the creative individual? Must the creative individual be free from personality problems in order to function effectively? Can the creative individual utilize his art as a means of maintaining a personality balance? Is there a certain type of personality that finds its best medium of expression in the more formal aspects of architecture as opposed to the more emotional warmth of working in color? Can one predict from personality studies alone those art students who are going to make the most spectacular contributions to their subjects?

UNDER a grant of $6,775 from the Geological Society of America, better methods of discovering new ore deposits will be encouraged by geochemical research now under way at Northwestern University. Results of the research are expected to be of value also to metallurgists, mineral and chemical processers, and to industrialists who depend upon replenished supplies of copper, lead, zinc, iron, and other ores.

With the aid of an apparatus which they have developed, the scientists are attempting to duplicate in the laboratory the natural processes by which crystals are replaced by chemicals carried in moving waters, or are dissolved and carried away to be deposited elsewhere, either in fissures in the earth's surface, with resultant lode formations, or as replacements in woody materials.

THE Department of State has announced a limited number of travel and maintenance grants to assist United States graduate students to undertake study or research in the other American republics. The United States Office of Education and the

Institute of International Education are co-operating in the administration of the program. The grants will provide travel or maintenance, or both, in accordance with the individual needs of the student and estimates of the cost of living in the country in which study is to be undertaken, and will be valid for six months to one year. Under exceptional circumstances they may be renewed.

Candidates must hold a Bachelor's degree or its equivalent and must be engaged in, or recently have completed, graduate study. They must also have a good working knowledge of the language of the country in which study is to be undertaken. Projects will be considered with reference to their usefulness in the development of broader understanding between the United States and the other American republics as well as on the basis of their technical merit, and should be sponsored by appropriate university or college authorities. Other things being equal, preference will be given to honorably discharged veterans of the last World War. Although no age limit has been set, the probability is that persons over thirty-five will have less chance of being selected. Successful candidates will be expected to remain in residence for the purpose of study or research for at least six months. It is hoped that announcement of recipients of grants can be made by May 1, 1947.

THE Third Summer Institute on the United States in World Affairs will be conducted by the American University, June 16 to July 25. In each of the earlier sessions in 1945 and 1946, more than one hundred teachers from thirty different states participated. The basic course, consisting of 60 lecture-discussion sessions, will focus attention upon important issues of national and international policy, with emphasis upon the interrelation of domestic and foreign developments and problems. Leaders for these sessions will include government officials, university professors, and journalists. Visits will be made to Congress, embassies and legations, and government departments and agencies which deal with the several subjects included in the Institute program. Members of the Institute may arrange to earn six semester-hours of graduate credit, or they may enroll as auditors. Teachers who wish to attend the Institute should write as soon as possible to Walter E. Myer, director, Institute on the United States in World Affairs, 1733 K Street, N. W., Washington 6, D. C.

FIFTY-SEVEN crates containing ten thousand separate pieces of documentary material on post-revolutionary Spain have arrived at the Hoover Library on War, Revolution, and Peace at Stanford University. Six more crates of the same shipment are still en route from Spain. More than half of the current shipment—the largest single shipment of documents ever received by the Hoover Library—is made up of books, pamphlets, and Spanish newspapers from the German Cultural Institute in Madrid. This institute, operated by the German embassy, was the center of Nazi propaganda in wartime Spain. The remainder of the shipment consists of documents covering the Franco régime since 1939 and also the Franco version of the Spanish Civil War. It also

includes a highly prized collection of materials on the current anti-Franco underground movement. How these underground papers were taken out of Spain is a library secret. The world's most complete collection of documents on recent Spanish history is now in possession of the Hoover Library, according to Harold H. Fisher, chairman of the library.

A NEW non-denominational liberal-arts college for men is expected to open in September, 1947, on the historic seven-hundred–acre Dan R. Hanna estate overlooking the Stockbridge Bowl in Stockbridge, near Tanglewood, home of the Berkshire Music Festival. This is made possible by an endowment gift of four and a half million dollars by Paul W. Mellon. The college will be headed by Stringfellow Barr, now president of St. John's College at Annapolis. Dean Scott Buchanan of St. John's will also go to the new institution, whose educational methods, it is said, will be similar to those of St. John's. The college will have an enrollment of about three hundred and a faculty of thirty. In addition to Stringfellow Barr and Scott Buchanan, the incorporators are Mark Van Doren (Columbia), Mortimer J. Adler (Chicago), Charles R. Alberti, State District Attorney in Massachusetts; and Francis J. Quirico, a Pittsfield lawyer.

Mr. Barr indicates that the new college will center on non-elective courses of studies through the reading and discussion in seminars of the one hundred best books of ancient and modern thought from Homer to the present, together with laboratory science, mathematics, and foreign languages. A new type of research will emphasize relationships among various fields of knowledge rather than intensive investigation into specialized fields of knowledge.

THE Emergency Committee of Atomic Scientists is soliciting contributions toward a fund of $1,000,000 to educate the public with respect to these facts:

1. Atomic bombs can now be made cheaply and in large number. They will become more destructive.
2. There is no military defense against atomic bombs, and none is to be expected.
3. Other nations can discover our secret processes by themselves.
4. Preparedness against atomic war is futile and, if attempted, will ruin the structure of our social order.
5. If war breaks out, atomic bombs will be used, and they will surely destroy our civilization.
6. There is no solution for this problem except international control of atomic energy and, ultimately, the elimination of war.

The Committee does not propose to make governmental policy, either on the national or international level. Its purpose is to make available an understanding of the Atomic Era on which such policy must depend.

Contributions may be sent to Albert Einstein, chairman, Emergency Committee of Atomic Scientists, Inc., 90 Nassau Street, Princeton, New Jersey. Gifts to the Committee are exempt as contributions from the Federal income tax.

·Editorial·Comments·

A False Analogy

IN A good many liberal-arts colleges, a student is required to devote almost the entire first two years to general education; he is not permitted to begin specialization in the field of his main interest until the junior and senior years. A student who plans a career in law or medicine is required to complete two to four years in liberal arts before he begins his professional studies. These and similar practices are defended on the ground that one must "lay a good foundation" before he starts to specialize.

The use of this phrase in this way means drawing an analogy between the construction of a building and securing an education. Reasoning by analogy is often useful, but it is also hazardous. No analogy is perfect and there is always the danger that we shall use the analogy in a way that hinders rather than helps clear thinking.

If becoming educated is closely similar to constructing a building, if general education is comparable to the foundation, and specialization to the superstructure, obviously the one must be completed before the other is begun. But the two processes are not closely similar; the analogy is false.

The educative process is much more closely analogous to the growth of a plant than it is to the construction of a building. Plant growth and education are both examples of organic development rather than mechanical construction. And the plant does not complete its root system as a "foundation" before it starts its stems, branches, and leaves. The various parts of the plant develop together as components of an organism; the development of each part continuously affects, and is affected by, that of all the others.

When we grasp the full implications of this principle, we shall avoid not only mechanical analogies but educational programs which divide the life of the growing organism into sharply separated periods. We shall recognize that "general" and "special" education are simply phases of a continuous process of development. We shall also recognize that specialized or vocational courses, properly taught, are one of the most effective means of general education, and that many "general" courses (e.g., economics) call for more maturity than many professional courses (e.g., mechanics). When our educational insight has developed to this point, we shall be in much better position to arrange curriculums that promote maximum growth.

Teamwork in Michigan

THE joint statement presented to the Michigan Legislature early this year by the presidents of the seven state-supported higher institutions is a fine example of educational statesmanship. It sets forth the essential facts about the demands for higher education in the nation at large and in Michigan, as they are now, and as the forecasts of the American Council on Education,

the United States Office of Education, the Veterans Administration, and other agencies indicate they will be during the next two decades.

The statement emphasizes the fact that the recent unprecedented increase in enrollment "is not, as too commonly believed, alone the result of the return to civilian life of millions of education-hungry veterans." It points out that there will be a further increase until a peak is reached about 1950, a moderate decline until about 1960, when the veterans will have completed their formal education, and then another upward trend. The long-range increase is due to a number of factors, including the "tendency of American parents to seek more and better education for each new generation," the natural increase in the population, and "the constant raising of minimum requirements for entry into business and the professions." The situation is the more serious because teaching and many other professions have been seriously depleted as a result of the war and must be replenished.

If the enrollment in prospect were to be spread evenly, each of the seven state colleges would be expected in 1950 to take care of two and one-half times as many students as are now enrolled, and in 1960, one and one-half times as many. The presidents "point with pride" to the fact that no qualified Michigan veteran and no qualified non-veteran male student has been refused admission. But the number of women admitted has been limited, with the result that "Michigan women have found it extremely difficult to get into colleges this year." The authors remind the legislature that for nearly twenty years the seven institutions have had practically no buildings erected from state funds.

It is on the basis of these facts that the presidents make their case for substantially increased funds for operation and for buildings and equipment. There is little that is new in their statement; the facts are well known to all who have studied recent and prospective trends in higher education. But the joint presentation of the case in a straightforward and factual, but effective, manner constitutes a fine example of teamwork on a high level.

R. H. E.

··Reviews··

"*A Candid Appraisal of the American College*"

CAMPUS VERSUS CLASSROOM, *by Burges Johnson.* New York: Ives Washburn, Inc., 1946. 305 pp. $3.00.

This is a thoroughly delightful book. It is not autobiography, though the greater part of it is given over to reminiscences of a long and rich academic career. Nor is it what the subtitle promises, "A Candid Appraisal of the American College," though it contains much appraisal written with a candor that is refreshing in its skepticism of conventional academic procedure. It is a mellow book, the product of a warm human being who obviously enjoyed teaching, and of a critical intelligence that saw through the foibles and pretenses of much academic practice.

The author went to Amherst, which he loves but does not spare. After sixteen years as a newspaper man and magazine editor, he joined the faculty of Vassar to look after public relations and to teach writing. From there he went to Syracuse in the same dual rôle, finally migrating to Union College, from which he has only recently retired.

Out of this variety of experiences, including summer-school teaching from Breadloaf to the Rocky Mountains, come amusing anecdotes, shrewd observations, and "sundry philosophizings" on the academic scene. The teaching of English composition comes in for much amusing discussion. To write, one must have something to say, and one must be concerned with saying it in a way that will affect one's audience. Spelling is a technique that will come in time.

> There are just two kinds of writing—good writing and bad writing. Good writing is that which succeeds in doing to the reader what the writer meant it to do; bad writing is that which fails to accomplish the writer's purpose (page 133).

College and university publicity is put in its proper place by one who was responsible for public relations. That place is real, but it is far removed from much of the contemporary ballyhoo, which the author rightly condemns as inconsistent with the dignity of an educational institution. Strictures on courses in education and on the multifarious requirements of the state boards of education will cause anguish in certain circles—that is, if they read books like this. Administrative machinery and administrative officers are judged to be the necessary evil they undoubtedly are. Their problems are voiced with sympathy; their hypocrisies and self-inflated importance, with scorn.

In so far as the book has a thesis, it is the importance of combining, instead of divorcing, the extra-curricular activities (the campus) and the pursuit of knowledge (the classroom). The one tends to discipline the emotions, the other the head. Both are necessary for full education; but as now set up, too many institutions separate the two, with inevitable conflict, confusion, and failure. This, according to Mr. Johnson, is the reason why "it is possible for [our colleges] to send out into the world so large a proportion of young men and women who are only half educated" (page 7). Most educators will agree that extra-curricular activities play an important part in the total education of students, and most, though not all, would accept some institutional responsibility for harmonizing the two. Unfortunately, Mr. Johnson does not tell us how it can be done more effectively, and his unimplemented suggestions that the two should somehow be merged leave a good many doubts and questions concerning policy as well as practice.

Whatever one may think of the thesis which gives this book its title, the real contribution is clear. Education is the coming together of teacher and student

in an atmosphere of freedom and of serious purpose. To be successful, it needs teachers who are genuine human beings as well as scholars and who recognize their students as human beings, each with his own individuality and his own demands. This is the heart of education. "America contains too many universities and colleges which emit the sounds of educational machinery at work, but without producing the substance" (page 45).

JOHN W. NASON
Swarthmore College

Is Theological Education Professional?

THEOLOGICAL EDUCATION IN THE NORTHERN BAPTIST CONVENTION, *by Hugh Hartshorne and Milton C. Froyd.* New York: Board of Education of the Northern Baptist Convention, 1945. 242 pp. $2.00.

An educational survey need not be tedious and designed only for specialists in a particular field; it may make a contribution both in technique and content to a wide circle of readers. A prize illustration is at hand for all who have an interest in higher education—a study of theological education in one Protestant denomination which serves to throw light upon problems that are basic not only to all church bodies but to professional education in general.

In 1944–45, a survey of theological education in the Northern Baptist Convention was carried on under the direction of Hugh Hartshorne of Yale University and under the sponsorship of a commission of which W. W. Charters was chairman. Although this study was subject to a number of self-imposed limitations, it represents by all odds the most substantial and inclusive survey made so far of theological education in any single denomination.

The value of this study for a larger constituency consists partly in the skill with which the total problem of theological education was broken down into its component parts, as indicated by three major questions: What is the job of the minister? Who are the candidates for the ministry? How are the candidates being trained? The first inquiry, directed to a representative group of ministers in the field, led to an analysis of the professional task and status of the Baptist minister. Data for the second question came from Seniors in theological schools of the Northern Baptist Convention. The third question led to a study of recruitment policies and a review of the aims and curriculums of the ten theological schools themselves.

There is one fundamental question in the mind of Mr. Hartshorne and his associate, however, that becomes more and more central as the results of the survey are elaborated: To what extent is theological education, as it is now constituted in the Northern Baptist Convention, professional education? The definition of professional education is illuminating: as distinct from what is done by a traditional liberal-arts school or by a trade school, professional education is concerned with the development of a body of graduates who

> possess a broad grasp of the basic sciences underlying the work and thought of the practitioner, a detailed knowledge of the facts related to some particular field of practice, an understanding of the principles which must be followed in successful practice, and at least so much skill in practice as to guarantee that they are likely to grow into competent members of the profession (page 214).

It is the sobering judgment of the directors of this study that the present theological curriculum, by and large, is not a professional curriculum; it is basically "a liberal arts curriculum with some trade-school practices added." This judgment is obviously not confined to theological education among Baptists, but abundant evidence is submitted from the Baptist study to support the thesis. This evidence comes in part from an examination of the seminary curriculum with respect to subject-matter and clinical practice; it comes also from the widespread feeling on the part of ministers and seminary Seniors that their training has been quite inadequate at many points, particularly with regard to functions in the community aside from the more conventional church activities. The remedy is no piecemeal addition to

the present curriculum of the seminaries, but a fundamental change based upon a fresh analysis of the job of the church and of the type of leadership it requires.

A related question which looms large in this survey is the recruitment policy of the denomination. The problem as stated is not to get more men to enter the Baptist ministry but to raise the quality of those who enter and to persuade them to take the kind of training that is needed for the ministry today. The directors deal sympathetically with the concept of the call that is so strong in Baptist tradition and with the individualistic tendencies that lead to wide variations in types of theological schools, but they insist that a strategy of recruitment can be devised that is compatible with a sense of call and that will lead to a shared responsibility of the churches, denominational agencies, and theological seminaries.

Leaders of other religious communions and other professions would do well to make this survey undertaken by the Northern Baptist Convention a guide to comparable studies until experimentation is launched on many fronts to develop a far-reaching strategy of professional education.

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Important Special Collections

LIBRARY RESOURCES OF THE UNIVERSITY OF NORTH CAROLINA: A SUMMARY OF FACILITIES FOR STUDY AND RESEARCH, *edited by Charles E. Rush.* Chapel Hill, North Carolina: University of North Carolina Press, 1945. x+264 pp. $2.50.

During the past few years, the scholar has been aided in the location of research material by the establishment and development of regional union catalogues and bibliographical centers. In addition to these aids there exists a need for carefully compiled guides to outstanding special collections and important subject collections.

The present volume, issued on the occasion of the Sesquicentennial Celebration of the University of North Carolina, is composed of contributions by curators of special collections and faculty members by whom the special collections and important subject collections of the University of North Carolina are described.

In the first chapter, Louis R. Wilson outlines the history of the library from the founding of the University of North Carolina in 1795 to the present. It is of interest to note in this connection that, of the more than four hundred thousand volumes in the library, over 85 per cent have been added since the Graduate School was established in 1904.

In the second chapter, "Cooperative Facilities in Research and Service," Charles E. Rush describes the co-operative projects which have been carried on by certain libraries in North Carolina, notably the co-operation with Duke University in the acquisition of research materials in some subject fields and the granting of mutual library privileges to faculty and graduate students of the two universities.

In the remaining chapters, the various special collections, departmental libraries, and collections in some subject fields are surveyed. Of greatest importance among the special collections are the Collection of North Caroliniana and the Southern Historical Collection. The present survey would have been of greater importance to the scholar if these collections, the most outstanding of their kind, had been described in greater detail. The Hanes Foundation, which ranks second among university libraries in the United States and Canada in its holdings of incunabula and which relates to the history of the book, also could have been described more fully.

The surveys of the reference collections, departmental libraries, and other subject collections are, for the most part, confined to the listings of selected reference works, bibliographies, periodicals, and monographs available. The important classes of publications of general scientific societies and academies and general-science periodicals are, as a class, completely ignored. Only occasionally is such a publication mentioned, and then only in the survey of some departmental library. Without an index of publications listed, it is difficult to check on the availability of such publications. Few standard bibliographies have been checked, and

no reference is made to the numerous studies of periodicals in subject fields.

Such a survey can be of only limited value to scholars in general. However, locally, this survey should be useful both as a guide to the library and as a guide in the future building up of the library.

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A Timely Book

ROSENBERG'S NAZI MYTH, *by Albert R. Chandler.* Ithaca, New York: Cornell University Press, 1945. ix+146 pp. $1.75.

Rosenberg is dead. The Nazi myth has gone underground. Is Mr. Chandler's book late?

Racialism has just enough basis in experience to appear not entirely fantastic to the many. Flattering prejudices and furnishing a whipping boy, it is too attractive a device for politicians not to use. It is bound to pop up again, probably sooner, and closer to our doorsteps, than we expect. Mr. Chandler's book is not late, it is early.

It is also a bit futile, and this for reasons which the author himself states very clearly. It is futile because it tries to argue scientifically and rationally with Rosenberg, to whom science, truth, and reason meant nothing and *Volk* and race, all. Argumentation is nonsensical between parties holding views of truth which are controdictory. As Socrates put it: ". . . those who are agreed and those who are not agreed upon this point have no common ground, and can only despise one another when they see how widely they differ." Mr. Chandler remarks, with reference to the conflict of church loyalty and racial loyalty: "On the level of moral, religious, and philosophical convictions, neither side can win a definite victory" (page 96). Yet he adds: "But on the level of historical fact, it is sometimes clear that one or the other is right" (page 96). And here, I think, Mr. Chandler underestimates the fanatical Nazi. Rosenberg does not believe that truth must be in agreement with fact. Though all the facts may be against him, the more fervently will he believe in the truth of his mission as "expression of the eternal Nordic soul" (page 66).

However, if neither Mr. Chandler nor anybody else could ever argue Rosenberg out of the racial myth, he can and does do so for those who are still willing to listen to reason and scrutinize the facts. Lucidly and entertainingly written, the book accomplishes its formidable task of giving in brief a fair account of Rosenberg's involved and tortured thought and of pointing out his theoretical and factual mistakes. From a discussion of Rosenberg's concept of race and *Volk* and his fight against Protestants, Catholics, and Jews, we are led to an appreciation of Rosenberg as epistemologist, metaphysician, moral philosopher, and aestheticist. After reporting in some detail the Catholic defense against Rosenberg, the volume ends with a description of Rosenberg's position and function in the party and in Germany. "His effectiveness as ruler of the Russian areas temporarily held by Germany remains to be determined" (page 125). The rope has taken care of this by now.

WALTER CERF
University of Minnesota

Post scriptum. As if to corroborate my suspicion that Rosenberg's ideas are still very much alive, and alive right here in our midst, a monthly magazine, sailing under the modest flag of *Truth and Liberty*, has found its way to my desk. The editor is one C. O. Stadsklev. I quote:

> The Israel of God in modern times are the people and nations called Anglo-Saxons, Celtics and Scandinavians. . . . it is scriptural to teach Israel was to be called by another name, and that name according to Genesis 21:12 was to be Isaac or Isaac-sons—which we today pronounce Saxons.

And, of course:

> . . . Hitlerism was sane and considerate compared with the treatment the Russians are giving the occupied countries.

Is Stadsklev a Nazi agent? Who are his backers? Is he just plain stupid, or intentionally pernicious, or both? In any case, I suggest Mr. Chandler send him a copy of his book.

Controversial

READING AND SPEAKING FOREIGN LANGUAGES, *by H. R. Huse.* Chapel Hill, North Carolina: University of North Carolina Press, 1945. vii+128 pp. $2.00.

Mr. Huse agrees with Michael West (*Bilingualism*, 1926) that the expressive study of a foreign language—that is, the active speaking knowledge of it—is an economic and intellectual burden. Only a passive reading knowledge should be the aim of any required course, although he admits that, for special purposes and under certain circumstances, a speaking knowledge is worth the price. Once this aim is conceded, Mr. Huse thinks, the method of instruction will take care of itself.

He believes that language can be broken down into "units": "By unit is meant a group of syllables or of words that in a given usage is indivisible, and which can be combined, added or subtracted in sentences, paragraphs, and pages of connected discourse" (page 89). Thus, *la petite fille*, *l'escalier*, and *descendre quelque chose en courant* are units that can be combined into *la petite fille descend l'escalier en courant.* If there were a frequency count of such units (as there now is of words and idioms), Mr. Huse maintains, the problem of what to teach would be solved: the units would be learned in the order of their frequency, with the exception that some units (for example, *mon*, *ton*, *son*) could be grouped together. Mr. Huse does not specify whether he means their frequency in spoken French, classical literary French, or modern written French. The question of how best to learn the list of units could be submitted to the experimental psychologist, who would find out the most economical way of memorizing it: whether it should be arranged by difficulty, association, connotation, or some other such means.

The whole program of the author rests, of course, on the assumption of the reading aim and his critique of the oral, conversational, "natural" approach. Mr. Huse maintains that a speaking knowledge is not only of negligible practical use for the average American but that it is an intellectual handicap. He conceives of language as a set of symbols and concepts, and fears that splitting our energies between two such sets would necessarily retard our linguistic maturity and, thereby, our mental development depending on it. In support, he quotes certain studies of bilingualism and its effect. On the other hand, no disadvantage will result from a recognition knowledge, according to Mr. Huse. He rejects the view that speaking is the shortest road to learning a language and maintains that, on the contrary, to read a language is the best foundation for learning to speak it. He holds that two entirely different learning processes are involved: the ability to speak, I assume, is acquired by imitation and memory; it is a skill, a habit, a set of reflexes; reading knowledge, on the other hand, is achieved by studial learning, by the exercise of intellectual faculties. Since, in reading, no new "reflexes" are required, the interference with the primary language is avoided.

Mr. Huse is certainly correct when he blames the confusion in modern-language instruction on the multiplicity of aims, and he makes a good case for the reading knowledge. But this reviewer is not quite convinced that a second speaking language is actually harmful (especially at high-school and college level). Investigators of bilingualism are by no means unanimous in their beliefs on this question.[1] Furthermore, bilingualism is often the sign of belonging to a racial, religious, social, polical minority; it is the symptom rather than the cause of intellectual antagonisms and disturbances. In addition, bilingualism is an ill-defined concept: how well does one have to speak another language to be bilingual?

Neither is this reviewer satisfied that learning to read and learning to speak are two entirely unrelated processes. It seems to me that some psychologists would object to this division between

[1] *See*, for example, Joseph G. Yoshioka, "A Study of Bilingualism," *Pedagogical Seminary and Journal of Genetic Psychology*, XXXVI (September, 1929), pp. 473–79; and Pierre Bovet, "Bilingualism and Education," *New Era*, XIV (July, 1933), pp. 161–63.

"habit" and "intellect," claiming that the learning process is integral. In fact, most foreign-language teachers have now adopted a modified method that tries to combine the advantages of both studial and incidental learning, of oral-aural and reading approach. Mr. Huse says that his list of units is as scientific as the multiplication table, but in learning to multiply we are not merely acquiring intellectual knowledge but also a habit, an automatic reflex. We neither recite the table nor figure out the result, but automatically and spontaneously react with 24 to the stimulus 6 times 4. The author's "unit" (and he himself is aware of the difficulty and ambiguity of that term) has precisely something of such an automatic response. "*Comment allez vous?*" cannot be literally translated into English; rather it recalls the response, "how do you do," which an Englishman would make in a situation where a Frenchman uses "*comment allez vous?*" Learning these units or responses would, then, involve the acquisition of reflexes and would not merely be an intellectual process.

In some classes under the A.S.T.P., it was such units (the word taken in a wider sense than that of Mr. Huse) that were memorized orally (so-called model conversations); reports on these classes, controversial and not yet fully evaluated, show that in some cases a good reading ability was acquired simultaneously. Whether Mr. Huse's suggested method would be more economical could be shown only by experiment; there is at least a suspicion that memorizing his lists of units may be psychologically more difficult and less stimulating than some compromise method.

This review has discussed only the main contentions of Mr. Huse's book. In conclusion, we must point to his many illuminating, stimulating comments and observations that should be pondered by all concerned. His chapter on "Why Study a Foreign Language?" his discussion of the rôle of grammar and translation, his strictures on sugar-coating learning and on substituting wasteful play for study (strictures that apply to some instruction in English or mathematics as much as to the teaching of foreign languages) make very profitable reading.

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Biography—An Integrating Subject

CHARLES CHRISTOPHER MIEROW

[*Continued from page 201*]

biography to the integration of learning is the recognition it brings of the way in which the parts played by various men fit together into one vast contribution to humanity as a whole. Benjamin Ide Wheeler makes the startling statement: "No single personality, excepting the carpenter's son of Nazareth, has done so much to make the world of civilization what it is as Alexander of Macedon. He levelled the terrace upon which European history was built." So, too, Julius Caesar made possible the great Roman Empire inaugurated by Augustus. Cicero, through the instrumentality of his lost work, the *Hortensius*, gave the first impulse that led to the conversion of St. Augustine. So, out of many nations and races and tongues there emerges in the course of the ages an education for man as man.

There is no better introduction to the realm of the history of ideas than the careful, sympathetic study of "great men": making for ourselves friends in the "Country of the Mind," to use Will Durant's expressive phrase. In them we see learning humanized. In them we find a synthesis of knowledge. In them we find the truest integration of education.